June 21, 2010

Office of Technical and Information Services
Architectural and Transportation Barriers Compliance Board
1331 F Street N.W., Suite 1000
Washington, DC 20004-1111

Re: Docket Number 2010-1; RIN 3014-AA 37 Comments on ANPRM

Via Web: http://www.regulations.gov

Dear Sir/Madam:

Enclosed please find comments of Oracle Corporation in response to the Advance Notice of Proposed Rulemaking ("Proposed Provisions") issued on March 22, 2010, by the Architectural and Transportation Barriers Compliance Board ("Access Board" or "Board"). These Proposed Provisions would significantly revise the Electronic and Information Technology Accessibility Standards set forth in Section 508 of the Rehabilitation Act and the guidelines under Section 255 of the Telecommunications Act. Oracle welcomes this opportunity to provide input to the Access Board regarding the Proposed Provisions so as to promote improved accessibility in technology products.

Oracle provides the world's most complete, open, and integrated business software and hardware systems, with more than 370,000 customers—including 100 of the Fortune 100—representing a variety of sizes and industries in more than 145 countries around the globe. Oracle's product strategy provides flexibility and choice to our customers across their IT infrastructure. Now, with Sun server, storage, operating-system, and visualization technology, Oracle is the only vendor able to offer a complete technology stack in which every layer is integrated to work together as a single system. In addition, Oracle's open architecture and multiple operating-system options gives our customers unmatched benefits from industry-leading products, including excellent system availability, scalability, energy efficiency, powerful performance, and low total cost of ownership.

Oracle has long been a leader in ICT accessibility. The Company's work was recognized by the American Foundation for the Blind for development of the first, comprehensive set of accessibility services for the Java platform, and received the AFB's highest honor – the Helen Keller Achievement Award – for our open source accessibility framework in Solaris which we donated to the UNIX and GNU/Linux communities and which is now an emerging Linux Foundation accessibility standard. Oracle was also the first in the industry to include as part of a platform a full featured screen reader with

refreshable Braille support. Oracle is the only ICT vendor to develop a cross-platform office suite – Oracle OpenOffice – that is accessible on all of the platforms it ships on: Macintosh, Windows, Solaris, and GNU/Linux systems[1]. Furthermore, Oracle has made significant contributions to numerous other open source applications. Today, Oracle has almost 2000 products that were developed to meet the standards of the current Section 508 provisions, documented in VPATs (Voluntary Product Accessibility Templates) on our public website at http://www.oracle.com/accessibility.

In addition to Oracle's product and technology accessibility leadership, Oracle also has had extensive involvement in accessibility standards and regulatory efforts. For example, Oracle staff were charter members of the World Wide Web Accessibility Consortium, sat on key accessibility standards efforts including WCAG, JTC1-SWG-A, the OASIS ODF Accessibility subcommittee (which Oracle co-chairs) and through its acquisition of Sun Microsystems, sat on both of the advisory boards formed by the U.S. Access Board – EITAAC (for development of the initial Section 508 Standards), as well TEITAC for the refresh of Section 255/508 provisions.

Given our commitment to accessibility, our knowledge of the challenges facing the industry, we are in a position to offer comments and recommendations on the proposed standards and guidelines and we thank you for the opportunity.

Very truly yours,

Peter Wallack, Accessibility Program Director
Peter Korn, Accessibility Principal
Oracle Corporation

1 FORTUNE, UNIX, GNU, LINUX, IACCESSIBLE2, WINDOWS XP, WIKIPEDIA, GNOME, INTERNET EXPLORER, WINDOWS VISTA, WINDOWS, ADOBE, ACTIONSCRIPT, SILVERLIGHT, FLASH, MICROSOFT, OPENID, DVD, SKYPE, FIREFOX, JORDY, QUICKTIME, and all other trademarks and or service marks not owned by Oracle that appear in this document are the property of their respective owners, who may or may not be affiliated with, connected to, or associated with Oracle.

Before the
Architectural and Transportation Barriers Compliance Board
Washington, D.C. 20004-1111

In the Matter of

Advance Notice of Proposed Rulemaking	
Electronic and Information Technology Standards;	**Docket No. 2010- 1**
Telecommunications Act Accessibility Guidelines	**RIN No. 3014-AA37**

COMMENTS OF ORACLE CORPORATION

I. Introduction

These comments are submitted on behalf of Oracle Corporation ("Oracle" or "the Company") in response to the Advance Notice of Proposed Rulemaking ("Proposed Provisions") issued on March 22, 2010, by the Architectural and Transportation Barriers Compliance Board ("Access Board" or "Board"). These Proposed Provisions would significantly revise the Electronic and Information Technology Accessibility Standards set forth in Section 508 of the Rehabilitation Act and Section 255 of the Telecommunications Act. Oracle welcomes this opportunity to provide input to the Access Board regarding the Proposed Provisions so as to promote improved accessibility in technology products.

Oracle hopes that the important and laudable objectives for ICT accessibility can be achieved without undue regulation that in the long term might tend to delay or even stifle technological innovation. As both an active participant in TEITAC and the refresh process to date, as well as having devoted decades to ICT accessibility from both the platform, application, and AT vantage points, Oracle is impressed with the breadth, depth, and scope of these Proposed Provisions. It is clear that the Access Board paid close and careful attention to the TEITAC report, and has a solid understanding of the issues and challenges around ICT accessibility.

As we noted briefly in public remarks in March, and note in more depth below, the Proposed Provisions significantly advance the framework for accessible ICT procurement. Notable advancements include WCAG 2.0 AA harmonization; recognizing the trio of responsibilities of platform, application, and assistive technology; requiring that a platform define a set of accessibility services, that an application must support

those services, and that an assistive technology shall utilize them; and introducing requirements for authoring tools. However, there remain important issues that warrant comment, clarification, and/or modification. We believe our suggestions regarding the Proposed Provisions will facilitate achieving the objectives of the law.

In organizing our responses, we first focus on a number of recommendations on technical issues and then more policy related issues that Oracle believes are of particular importance. After these sections, we address the 33 questions raised by the Board in connection with the Proposed Provisions. Our discussion of these questions contains additional comments and recommendations.

To aid in communicating our comments, where we have specific comments about provision text, we use the following editing conventions:

- Specific issues are called out in bulleted text.
- *Specific recommendations are called out in bulleted italics. Where that recommendation includes provision language*

  Provision language appears inset, and in boldface. Text proposed to be inserted [<u>appears in underlined brackets</u>]. Text proposed to be removed <~~appears in strikethrough angle brackets~~>.

II. Platform/Application/Interoperability with Assistive Technology

The Proposed Provisions recognize the three distinct technology roles in delivering accessible ICT to someone with a disability: (i) the role of the platform; (ii) the role of the application; and (iii) the role of the assistive technology. This approach represents a tremendous advance over the existing standards. However, it is not entirely clear as to what qualifies as a platform versus an application. Further, the Proposed Provisions are difficult to follow to the extent that they distribute applicable requirements for platforms and applications among numerous disparate provisions. Clarification is needed for each role and its associated requirements.

Oracle's specific comments related to the roles and requirements of platforms, applications, and assistive technology are as follows:

- *Role of the Platform*
  - The advisory note to 401.1 provides several examples of "platforms," encompassing software that would not ordinarily be considered "platforms" by most of the ICT community. This expansive scope blurs the distinction between applications and platforms. Without clearly defined roles and requirements for platforms, applications, and assistive technologies, one might achieve compliance without achieving the underlying goal of accessibility.

This development would frustrate the very purpose of the Proposed Provisions. The expansive scope of what constitutes a "platform," as suggested by this advisory note, would include: (a) anything providing its own accessibility API; (b) any interactive form; (c) and, potentially, most software applications. When read in light of 412 ("Assistive Technology Function"), any application (or even any interactive form) that defines its own accessibility API and/or assistive technologies would have the burden of supporting each and every one of the "platform-specific" requirements. This would clearly be an undesirable and arguably an untenable result.

While the advisory note suggests an overly-broad definition of "platform," E111.5 defines "Platform Software" as a "collection of software components that run on an underlying software or hardware layer and that provide a set of software services to applications that allows them to be isolated from the underlying software or hardware layer." We agree with this definition and suggest that the advisory note to 401.1 be modified so as to be consistent with this definition.

- The proposed definition and use of the term "Platform Accessibility Services" suggests that the only valid provider of the services is the platform itself. Ideally, this would be the case; however, platforms do not always provide adequate accessibility services. When platform-provided accessibility services are inadequate, it is sometimes possible to use services provided by a third-party. For example, we already have a situation in which a platform failed to define and provide a sufficiently rich set of accessibility services, and an industry standards body stepped in to define and provide one (IAccessible2 on Windows XP). For purposes of applications, it should be explicitly acceptable to use accessibility services, such as IAccessible2, that are not platform-provided.
- The Proposed Provisions require in 409.2 that applications provide user preferences for using "platform settings for color, contrast", etc. However, there is no parallel provision stating whether and under what conditions a platform has the responsibility for defining these settings. Inconsistent or missing platform support could frustrate an application's compliance with the requirements of 409.2.
- In the advisory note to 409.2.1 regarding applications that are also platforms, it would be useful to provide additional examples of applications that are also platforms. The Board may consider using any of the software platform examples cited in the following Wikipedia article: http://en.wikipedia.org/wiki/Computing_platform. Among those listed, the Java platform is the first one to fully implement both its own set of accessibility services, and to map those services to the accessibility services of an underlying operating system (that of GNOME accessibility framework on

UNIX and GNU/Linux). Returning to Web browsers, examples may include browsers that implement the WAI ARIA draft specification and map them to underlying operating system accessibility services (such as Firefox does to IAccessible2 on Windows and the GNOME accessibility framework on UNIX and GNU/Linux; and as Internet Explorer does to UI Automation on Windows Vista and Windows 7). These examples illustrate how ICT needs to handle the combination of 409.2.1 and 410.4 for "app that is also a platform" situations.

- *Role of the Application*
  - The requirements for user interface components enumerated in 411.2 are insufficient. Many current assistive technology needs cannot be met through those requirements. Examples include the following:
  - Screen Magnification: Without boundary information for objects getting focus, screen magnification software cannot track focus events.
  - Screen Reading: A screen reader cannot speak the current value of a slider or scroll bar without value information, cannot speak the label of a text field without labeling information, and cannot read the row and column headers of table user interface elements without row/column information.
  - Voice Command Systems: A voice command system cannot build dynamic voice recognition grammars for the actions that can be performed on objects – like "*open popup* for *combobox State*" - among others.

While it is neither possible nor desirable to anticipate every future possible assistive technology need, we should at least require that platforms define, and applications support, known programmatically determinable information needs of assistive technologies in use today.

- *General Comments*
  - There is unnecessary and confusing duplication of the requirements for programmatically determinable information spread out among several provisions in both Chapters 4 and 5. Collecting them together in one place will help ICT vendors creating platforms, user interface component toolkits, and developing applications. Vendors would have a single list of the minimum set of information that must be in their provided accessibility services
  - Finally, we recommend harmonization with the evolving ISO 13066 standard, which explicitly defines all aspects of AT-IT interoperability, including the minimum set of programmatically determinable information that all IT must provide to AT. As this standard is being developed jointly by assistive technology vendors in concert with ICT vendors (some of whom also develop assistive technologies) – representing multiple platforms (Windows, UNIX and GNU/Linux, Java, Web), we believe that effort represents the state of the art knowledge in this area. Incidentally, the ISO 13066 standards were developed through an industry-advocacy-assistive technology collaborative effort.

We therefore recommend the following changes:

- *Shift from the term "Platform Accessibility Services" to simply "Accessibility Services," and change the definition of this term to:*

  Services published and implemented for a platform enabling interoperability with assistive technology, such as but not limited to accessibility Application Programming Interfaces (API) or Document Object Model (DOM).

- *Modify the Advisory to 401.1 Scope to remove the second, third, fourth, and fifth paragraphs starting respectively with "Examples of applications include...", "When applications provide...", "Electronic content can...", and "Examples of electronic content".*

- *Modify provision 410.2 to read:*

  410.2 Platform Accessibility Services. Platforms and software toolkits for those platforms shall provide a set of accessibility services that support a mode of operation for applications running on the platform to interoperate with assistive technology. Applications that are also platforms shall expose the underlying platform accessibility services or implement other published accessibility services. The accessibility services shall be sufficient to support 410.4.

- *Modify provision 410.4 to read:*

  410.4 Object Information. Applications shall use accessibility services to conform to 410.4.1 through 410.4.10.

- *Modify the advisory to 410.4 to read:*

  410.4 Advisory. Applications may use platform accessibility services or other published accessibility services to conform to 410.4.

- *Introduce the following 10 sub-provisions:*

  410.4.1. The object role, state(s), boundary, name, and description shall be programmatically determinable.

  410.4.2. The row and column an object is in, and the headers for the row and column for that component, if it is in a data table that has row or column headers, shall be programmatically determinable.

  410.4.3. The current value and any minimum or maximum values, if the component represents one of a range of values, shall be programmatically determinable.

  410.4.4. The relationship this component has as a label for

another component or being labeled by another component shall be programmatically determinable.

410.4.5. The name of the object's parent or containing element and any children components shall be programmatically determinable.

410.4.6. The text contents, text attributes, and the boundary of text rendered to the screen shall be programmatically determinable.

410.4.7. A list of actions that can be executed on an object shall be programmatically determinable.

410.4.8. Applications shall allow assistive technology to programmatically execute available actions on objects.

410.4.9. Applications shall expose information and mechanisms necessary to track and modify focus, text insertion point, and selection attributes of user interface components.

410.4.10. Notification of events relevant to user interactions, including but not limited to changes in the component's state(s), value, name, description, or boundary, shall be available to assistive technologies.

- *Remove 411 ("Compatible Technologies"), as it would be fully covered by 410.4, as modified above.*
- *Likewise remove 404.6 "Focus, Text Cursor, and Attributes", as this is now covered by 410.4*
- *Also remove 508.3 "User Interface Components", as this is likewise now covered by 410.4. Or failing that, reference instead 410.4 rather than 411. But in any case, the language "be used according to their specification" is not appropriate. Things can be accessible without being used fully to their specification (e.g. they are following the accessibility portion, but are out of specification in some other fashion)*
- *And remove 502.2.1.2 "Controls or Inputs", as these are user interface controls and so fully covered by 410.4.*
- *Correct the misstatement in 412 "Assistive Technology Function", which erroneously states that an AT should make things "programmatically determinable". Assistive technologies provide alternate user interfaces (e.g. speech output for the blind) by using the programmatically determinable information they receive from applications (via accessibility services). Also align the provision with "accessibility services" instead of "platform accessibility services". The modified provision would then read:*

412.1 General. Applications providing an alternate user

interface that functions as assistive technology shall use, at a minimum, <~~platform~~> accessibility services to <~~make information about~~> [provide their alternate user interface(s) for people with disabilities to the] components, interactive elements, and other objects <~~programmatically determinable~~> [of the applications running on the platform].

- *More fully address the topic of user preferences by making modifications to 409.2 and 409.2.1, and introducing a new provision 409.3:*

  409.2 User Preferences. Applications shall provide a mode of operation that uses user preferences for platform settings for color, contrast, font type, font size, and focus cursor [where the underlying platform defines those settings].

  [409.3 Platform Settings. Platforms shall enable users to choose from a variety of color, contrast, font type, font size, and focus cursor settings where such choices are appropriate to the platform. Platforms that are also applications do not need to do this, so long as they have a mode of operation to convey those settings from the underlying platform.]

  409.2.1 Underlying Platform Settings. Applications that are also platforms shall provide a mode of operation that <~~uses~~> [exposes] the underlying platform's settings for color, contrast, font type, font size, and focus cursor[; where such settings exist and are defined].

- *Finally, related to this last topic, it would be useful in the advisory note to 409.2 to provide additional examples of applications that are also platforms. Any of the software platform examples in the Wikipedia article cited above would work here. Among those listed, the Java platform is first one to fully implement both its own set of accessibility services, and to also map those services to the accessibility services of an underlying operating system (that of GNOME accessibility framework on UNIX and GNU/Linux). Returning to the Web browser example, browsers that implement the WAI ARIA draft specification and map them to underlying operating system accessibility services (such as Firefox does to IAccessible2 on Windows and the GNOME accessibility framework on UNIX and GNU/Linux; and as Internet Explorer does to UI Automation on Windows Vista and Windows 7). These examples illustrate how ICT needs to handle the combination of 409.2.1 and 410.4 for all "application that is also a platform" situations.*

III. Authoring Tools, Electronic Content, and the distinction between Chapters 4 & 5

Assistance to authors of documents – to help them use appropriate structure and add the

necessary accessibility metadata – is of great importance particularly given how many documents are generated and used within agencies and published to the public at large. This has been recognized for some time, as evidenced by the W3C Web Accessibility Initiative through its Authoring Tool Accessibility Guidelines, and by industry-led work in office suites and other document creation applications.

The scope of what an "Authoring Tool" is unclear. Oracle is concerned that the draft language might be misinterpreted to apply to more than applications used to create documents and primarily static content – and instead might be seen to apply to developer tools used to create software.

This arises because there is a fuzzy line between what is and is not "interactive content" as set forth in the Advisory to 501.1 Scope. For example, does a web page become interactive when it has a "submit" button on it? When it has an edit text field on it? When it has a series of animating images? When it has a Flash animation encoded in ActionScript (or Java or JavaFX or Silverlight)? Another challenging example is a PDF document – which can have interactive form elements, as well as custom JavaScript code that is executed upon interacting with the various form elements. A final example arises when blocks of text – perhaps large bodies of it or entire documents – that are displayed as part of an application (e.g. a EULA). Is a collection of paragraphs of text scrolling inside a dialog box an "authored document"?

It is important that the scope of what is an "Authoring Tool" include those things that are clearly used broadly by nearly all staff and end users – e.g. word processors, spreadsheets. It is likewise important that the scope clearly exclude tools used by software engineers to create applications and platforms and operating systems – things like code editors and Integrated Development Environments.

It seems that the Access Board struggled with this issue, as Chapter 4 is titled "Platforms, Applications, and *Interactive Content*" (emphasis added), yet the scope advisory statement to Chapter 5 ("Electronic Documents") states that "electronic documents may also contain interactive content". This seeming contradiction is at the heart of the problem. Additional confusion arises between the references to "Electronic Content" in E103.3.1, and its definition in E111 versus the definition of "Electronic and Information Technology (E&IT)" in E111 which explicitly states that electronic content includes "email, electronic documents and Internet and Intranet web sites"; and references to Electronic Content in Chapters 4 & 5.

Therefore Oracle proposes that the line between Chapters 4 & 5 be clearly that of *code*. If someone creates a document – with interactive elements such as hyperlinks, buttons, form elements or fields – without writing code, then that person should be seen as an "author", and that person should be following the provisions in Chapter 5. If someone creates an application (or platform or operating system) by writing a series of logical instructions in computer code that are executed by the computer – perhaps in order to display information (including text) – then that person should be seen as a "programmer", and that person should be following the provisions in Chapter 4.

Following this logic thoroughly – a piece of JavaScript attached to an HTML or PDF document is code, while the rest of the HTML/PDF document is a document. Should that JavaScript code generate or manipulate any user interface elements and handle any user interaction, it must follow the provisions in Chapter 4. Meanwhile, the rest of the document must follow the provisions in Chapter 5. Likewise, someone creating a Flash web page simply by dragging and dropping stock items in Adobe Flash Builder is an "author", but when they annotate what they have created with ActionScript code, they are a programmer. Creating a document in Microsoft Word or Oracle OpenOffice Writer is an authoring task, while writing macros to manipulate the Word or Writer document is a programming task. Similarly simply entering a formula into a spreadsheet is authoring, but creating an Excel or Calc macro is programming.

Making the distinction this way clarifies what is and is not in scope of the "Authoring Tools" provision, as well as clarifies the line between Chapters 4 & 5.

Beyond this broad issue, there are a few specific concerns specifically about the Authoring Tool provisions in 413.x.

- One concern is around the sheer number of file formats modern office suites and other authoring tools support (413.2). Many of these formats have largely fallen into disuse, and the code to read/write them has remained essentially unchanged in the tool for many years and multiple releases (for example, Oracle Open Office can create documents in over 80 distinct file formats, most of which are for backward compatibility with those created by older office applications going back more than two decades). Updating these tools to support accessibility *for all formats supported by the authoring tool* would be a very large engineering effort yielding almost no tangible benefit.
- Another concern has to do with implementation of the ability to allow authors to override information required for accessibility (413.2 Exception 2). Many classes of authoring tools generate code "under the covers" (e.g. Flash Builder), and persisting customizations ("overriding") of this generated code by authors may be extremely challenging and require a fundamental alteration of the design of the tool. So long as an author can enter all of the information needed for accessibility, it shouldn't be necessary to "override" it after the fact.
- Specifically relating to 413.3 Prompts, the draft text seems to assume that a prompt is something that interrupts the flow of the author, while we believe that there are a variety of other techniques for alerting authors to places where they need to add structure or metadata to support accessibility that are sufficient to bring the issue to their attention without being as intrusive. One such technique is akin to showing spelling errors by drawing a wavy red line under misspelled words (where such visual indication is of course exposed to assistive technologies via Accessibility Services). The Advisory note to 413.3 recognizes this issue, which can be better dealt with through providing greater latitude in what constitutes a "prompt". Also, it is unclear how the phrase "when

programmatically determinable" should be applied to this provision.

- Also, "template" isn't defined. This, combined with questions of scope of 413 overall, is problematic.

Finally, all of the references to, and examples of, Electronic Content, should be harmonized with each other.

We therefore recommend the following changes:

- *Modify the definition of Electronic Content to read:*

  Electronic Content: non-dynamic documents, or non-interactive media, that are encoded in a Content Format. Executing software – including scripts and macros, are not electronic content. To the extent that these scripts create or modify electronic content (e.g. a spreadsheet macro), the result of the script is electronic content, and the script may be included with the overall electronic content (e.g. in the same spreadsheet file).

- *Introduce a definition for Content Format to read:*

  Content Format: Content includes information and sensory experience communicated to the user and encoding that defines the structure, presentation, and interactions associated with those elements. Examples of content are text, images, sounds, videos, controls, and animations. A Content Format is a defined specification for encoding content. Examples of content formats include, but are not limited to: word processing files, presentation files, spreadsheet files, text files, PDFs, and HTML files. Content in Content Formats are commonly created by Authoring Tools.

- *Modify E103.3.1 "Electronic Content" to read:*

  "~~<Electronic content shall conform to E103.3.1.>~~ When Federal agencies communicate using electronic content regardless of transmission or storage method, such electronic content shall conform to [E103.1.1 and related] applicable provisions when the communication is: (a) an official communication by the agency or a representative of the agency to Federal employees which contains information necessary for them to perform their job functions; or (b) an official communication by an agency or a representative of the agency to a member of the public, which is necessary for them to conduct official business with the agency as defined by the agency's mission."

- *Modify the last three sentences of the Advisory to 401.1 "Scope" (starting with the sentence "Interactive elements written…" to read:*

Electronic Content that doesn't contain embedded code (e.g. JavaScript, macros, applications scripts) should follow the provisions in Chapter 5 rather than this chapter. Where executable code is embedded within Electronic Content (e.g. JavaScript, macros, application scripts), and used to display or interact with user interface elements, it must comply with the provisions in this chapter.

- *Modify the first paragraph of Advisory to 501.1 "Scope" to read:*

  The provisions of this chapter apply to <e>[E]lectronic [Content] ~~<documents, which are mostly static, read-only, non-interactive electronic content>~~. Examples include ~~<W>~~[w]ord [processing] files, PDFs, ~~<PowerPoint>~~ presentation [file]s, ~~<Excel>~~ spreadsheets, and ~~<simple>~~ web pages (which do not contain ~~<Flash>~~ [scripts or other code]). However, <e>[E]lectronic [Content] ~~<documents>~~ may also contain interactive content, such as hypertext links, buttons, and form elements or fields. All of these elements are covered in this chapter. Electronic ~~<c>~~[C]ontent covered by this chapter includes most non-paper documents and web content, regardless of format.

- *Modify 413.1 "General" to read:*

  Applications that are used for creating [Electronic Content] ~~<documents or otherwise used for authoring>~~ shall conform to 413.).

- *Modify 413.2 "Authoring Tools" to read:*

  For [at least one content] ~~<all>~~ format~~<s>~~ supported by the authoring tool, authoring tools shall provide a mode of operation to create or modify content that conforms to Chapter 5 (Electronic Documents).

- *Modify Exception 2 of 413.2 "Authoring Tools" to read:*

  The author shall ~~<retain>~~ [have] the ability to ~~<override>~~ [provide the] information required for accessibility.

  - *Modify Advisory to 413.2 "Authoring Tools" to remove the three paragraphs, so that the Advisory starts with the sentence "Authoring tools which remove information required for accessibility do not conform to this provision."*

- *Modify 413.3 "Prompts" to read:*

  ~~<When programmatically determinable, a>~~[A]uthoring tools shall provide a mode of operation that prompts authors to [set programmatically determinable properties of the current content

format, so as to] create content that conforms to Chapter 5 (Electronic Documents)[, or otherwise highlights to authors where accessibility information is needed from them in order to conform to Chapter 5 (Electronic Documents)].

- *Add a definition of "template", or otherwise define it within 413.4. Such a definition should explicitly exclude sample source code.*

Beyond these specific language recommendations above, we recommend that the Access Board have a single definition of Electronic Content that is referred to throughout the rest of the document (rather than expanded upon in various place). For example, although 'content' is defined within E111, the definition of E&IT implies that electronic content "include[s] email, electronic documents and Internet and Intranet web sites". The full scope of 'electronic content' needs to be defined.

Further, the first sentence one of the definition of E&IT in E111 states that all 'electronic content' is covered, but subsequent sentences appear to restrict this to only 'official communications' which appears very narrowly defined by the given examples (and further supported by question 5 in the ANPRM). If the restriction only to 'official communications' are meant to prevail, does this exempt from conformance to this part any other electronic content that is not an 'official communication'?

IV. Issues Related to WCAG 2.0 Harmonization & Web

Harmonization with WCAG 2.0 is critically important, and the Proposed Provisions go a long way toward achieving that goal. Particularly, the notion of allowing the WCAG 2.0 AA requirements to substitute for entire sections of the provisions is very helpful, and will go a long way toward improving accessibility at lowered costs since it will promote WCAG 2.0 as broadly adopted worldwide standard.

However, the Proposed Provisions (in E107, and again in the Exceptions to 401.1 "Scope", and 601.1 "Scope") subvert this goal by introducing additional, U.S.-unique, requirements that must be met in addition to those in WCAG 2.0 AA. Oracle believes this is a serious mistake.

To address this, we recommend moving several provisions out of Chapters 4 & 6, and modifying a few others, as follows:

- Modify E107 to state that meeting WCAG 2.0 AA shall be deemed to meet all of the provisions in Chapters 4, 5, and 6.
- Modify the exceptions of 401.1 "Scope" to mirror that of 501.1 "Scope": "Electronic documents complying with the WCAG 2.0 Level AA Success Criteria and Conformance Requirements shall not be required to comply with other requirements of this chapter." Provision 409 "User Preferences" only makes sense for platforms, not for documents and web content. Provision 413 "Authoring Tools" is only for a very special kind of application – something that creates other content. It isn't applicable to the vast majority of web content. Perhaps it might

go into a new chapter, focused on “Specialized types of applications”.

- Modify the exception of 601.1 “Scope” to mirror that of 501.1 “Scope”: “Electronic documents complying with the WCAG 2.0 Level AA Success Criteria and Conformance Requirements shall not be required to comply with other requirements of this chapter.” Both Provisions 604.4 “Real-Time Video” and 604.5 “Multiple Visual Areas of Focus” are far broader than web content, and as their advisory notes make clear are fundamentally about how the agency generates the source material. Provisions 607 “User Controls for Captions and Video Description” and 608 “Audio Track and Volume Control” are likewise far broader than web content.
- Define “web page” used in E107, 401.1, 501.1, and 601.1 (and the related “web application” used in 409.1). This could be a direct reference to the WCAG 2.0 definition of “web page” (http://www.w3.org/TR/WCAG20/#webpagedef) or inclusion of that definition in E111.

In addition to these changes to support WCAG 2.0 AA use in place of Chapters 4, 5, and 6, there are several issues to note relating to WCAG 2.0 harmonization and web content generally:

- The language in Provision 402.3 “Alternate CAPTCHA” seems to imply that the only alternative to a visual CAPTCHA is an audio CAPTCHA. This is unreasonably limiting and removes the possibility of using some other non-CAPTCHA mechanism as an alternative. Some that have been proposed recently include using OpenID as the alternative mechanism which would not be allowed by this provision.
- Regarding Provision 403.2 “Audio Control”, there are times when an emergency message is displayed in an attempt to keep the user from doing something that would cause them to lose data or have some other very negative outcome. In these situations it is important that the users hear the message and that it not be terminated early before they understand its importance. To address, this we recommend adding the following sentence:

  “Exceptions: 1. This provision does not apply to emergency messages regarding risk of personal injury or loss of property or data, or to audio messages required by law.”

- Regarding Provision 405.2 “Control Over Time Limits”, WCAG 2.0 allows a timeout of 20 hours. This creates a minor inconsistency for a product that makes a conformance claim with WCAG 2.0. We believe the time limit here should be 20 hours to be consistent with WCAG 2.0.
- Regarding the Advisory to Provision 405.2 “Control Over Time Limits Exception 1”, in certain situations this may be beyond the control of an application; an application server timeout may not be communicated to an application running on that server. We recommend the first paragraph of the advisory note be changed to:

"A server time out that is either directly under the control of the application or programmatically determinable by the application using a documented platform API, even for security reasons, is not a situation when user modification of the time limit would invalidate the activity. In these situations, a server time out is not an appropriate use of Exception 1."

- Provision 406.2 "Bypass Blocks of Content" really only makes sense in the context of a web site or other bodies of content that share common repeated sections. As such, this really should be part of Chapter 5, and not here in Chapter 4. The sole claimed example in the advisory to 406.2 only arises within web content (menus not being "repeated" within a desktop or mobile application).
- Provision 406.4 "Multiple Ways to Locate Content" is likewise speaking specifically to content, and doesn't apply outside of that context. We recommend moving this to Chapter 5. Further, we recommend adding an advisory note to 406.4 noting that providing document structure with structure navigation, and providing search capabilities, are two of the "multiple ways" that would satisfy this provision.
- In the Advisory to Provision 407.2 "No Change of Context from Focus", we believe that the example of form submission should be removed (or at least modified). Simply submitting a form should not be a problem – it is the change of context which could be associated with the form submission which is problematic. Also, it would be helpful if "context' were defined – what precisely is a "change of context"? Finally, there are numerous examples where some mode or context could change with keyboard focus and text caret movement in applications (e.g. arrowing through a document with different text attributes, and the attribute toolbar buttons highlight / unhighlight to reflect the status of the attributes of the text the caret I within). Therefore, in addition to the change below, we recommend this provision be scoped to content and moved to Chapter 5.
  We recommend modifying the final paragraph of the advisory as follows:

  "Examples of automatically changing context when a component receives focus which are prohibited by this provision include, ~~<form submission without a submit button,>~~ new windows opening without activation of a link (pop-over and pop-under), and changing (jumping) focus from the current component to another (perhaps on the same screen or in the same document)."

V. Issues relating to Closed Functionality

The Proposed Provisions treat closed functionality as a binary choice: ICT is either open or closed (see Provision 302.2 "Without Attachment of Assistive Technology"). Particularly when specific ICT functionality may be closed by agency policy, as a side effect of agency ICT installation, or by DRM, a more nuanced view is necessary and

appropriate. The Provisions should focus on the specific facet of the ICT that may be closed, with tailored remedies in each case. Also, Provision 302.2 – like all of the technical provisions in Chapters 3 through 10 – should be testable. The language "usable by people with disabilities" isn't testable.

Furthermore, the TEITAC report included recommendations necessary for dealing with closed functionality that aren't reflected in the Proposed Provisions (TEITAC Functional Performance Criteria (FPC) 1-D "Without Hearing", 1-E "With Limited Hearing", and 1-H "With Limited Reach, Strength, or Manipulation"). These should be restored, and scoped to Closed functionality. Finally, there should be direction on what an ICT vendor can and cannot do with respect to functionality that is closed by agency policy (or in the case of 255, by the policy of the telecommunications distributor, not the initial manufacturer).

We therefore recommend that provision 302.2 "Without Attachment of Assistive Technology" be replaced by the following three provisions:

> **Provision 302.2 Audio information: When ICT uses audio to convey information, indicate an action, or prompt a response in functions that are closed to interoperability with Assistive Technologies that provide alternatives to audio information, ICT shall provide a mode for such closed functionality in which audio is not the only means of conveying information, indicating an action, or prompting a response.**
>
> **Provision 302.3 Visual information: When ICT contains visual information needed for operation and use of functionality that is closed to interoperability with Assistive Technologies that provide alternatives to visual information, ICT shall provide a mode in which all information that is needed for operation and use of such closed functionality that is provided in visual form is also available in audio form or in simple tactile form.**
>
> **Provision 302.4 Without Speech: When ICT supports speech operation in functions that are closed to interoperability with Assistive Technologies that provide alternatives to speech operation, ICT shall provide a mode for such closed functionality in which there is an alternative non-speech mode of operation for all functions operable by speech.**

We further recommend the following sentence be added to the end of the Advisory to Provision 302.1 "General":

> **"When the ICT is closed by policy or as part of the installation/configuration (and not by design from the manufacturer or vendor) manufacturer/vendor statements of conformance at time of sale may be accurate."**

VI. Issues Relating to Hardware

Nearly all of the provisions in 307 "Operable Parts" – with the sole exception of 307.6 "Non-Mechanical Controls" – are specific to hardware aspects of ICT. Therefore we recommend that 307.1 through 307.5 be moved to Chapter 7.

Looking specifically at some of the items in 307:

- Regarding Provision 307.2 "Clear Floor Space", it is not clear how a vendor can report conformance to this, as it depends on the final deployment of the product by the agency. At a minimum, it should be scoped to apply to only freestanding or installed products.
- Regarding Provision 307.3 "Height", it is likewise not clear how a vendor can report conformance to this, as it depends on the final deployment of the product by the agency. This also ties into the exception §1194.3(f) which was removed from this draft (and which we discuss in the section "The Exception for Products Located in Spaces Used Only by Service Personnel Should be Rewritten, Not Removed" below). We suggest the following sentence be added to this provision:

  "A manufacturer/vendor statement of conformance at time of sale may designate a typical or recommended deployment height."

- Regarding Provision 307.4 "Operation", people with larger hands are often capable of making simultaneous actions (e.g. pressing multiple keys, one with each finger). In order to support ICT use of hardware by people with extremely limited upper limb capability (e.g. a hook prosthetic, a mouth stick), this provision should be modified to indicate that it is support for simultaneous actions – rather than one hand – that is required. To address this situation w e recommend the following change:

  "ICT with operable parts shall <~~be operable with one hand and~~> shall not require tight grasping, pinching, or twisting of the wrist[, or simultaneous actions]."

- Regarding Provision 307.5 "Touch-Operated Controls", we recommend renaming this to "Mechanical Controls", and remove "touch pads" from the enumerated list.
- Regarding Provision 307.6.2 "Operation Without Physical Contact", we feel it would be useful to have the advisory notes for "202.10 Without Physical Contact" restated here, if not moved here (since E103.5.1 Relation of Functional Performance Criteria to Technical Provisions states that "If there are applicable provisions in Chapters 3 through 9 that fully address the product or service being procured, then the agency need not look to Chapter 2 (Functional Performance Criteria).").
- Regarding Provision 703.1 "General", this provision suggests that if any connection point is provided, then a specific – but undefined set – of connections

must be provided. Note also please provision 905.3.2.2, which suggests that any hardware device capable of video communication must have a [standard] video output connector capable of a 640x480 resolution. Since virtually all general purpose desktop and laptop computers, as well as an increasing number of mobile phones and similar devices (cf. the Nokia Internet table family of products), can provide video communication, this implies that all of these devices must have a standard video output connector capable of 640x480 resolution – even though they may not have any video output connector, and further that video conferencing is simply a software function that may not have been included with the base hardware device. We recommend the language be changed to read:

> **"When connection points are provided, at least one of each type of connection [<u>that is provided</u>] shall conform to industry standard non-proprietary formats."**

Also, we suggest adding the following advisory note: "Adapters may be used to conform to the requirements of this provision."

- Regarding Provision 704.2 "Accessible Mode for Text, Images of Text and Symbols", it covers too many scenarios where text is not part of regular product use (e.g. serial numbers). Likewise, it fails to recognize another means of tactile discernibility: position & layout. We recommend the language of exceptions #1 and #3 respectively be changed to read:

  > **"When not provided for product use, safety labels, regulatory labels, [<u>serial and model numbers</u>], logos, and certifications shall not be required to conform to 704.2."**
  > **"Information for product use that is conveyed in a way that is uniquely tactility discernible through shape [<u>or layout</u>] shall not be required to conform to 704.2."**

- Regarding Provision 704.3.1 "Text Attributes", a misapplication of this provision could lead to more cryptic abbreviations where space is very limited (for example a button being labeled 'PgDn' vs. 'Page Down'). Also, the requirement for a sans serif font in these situations doesn't match our understanding of what is best for legibility of text in small sizes. We recommend adding an exception to 704.3, which dovetails with the recommended change to Exception #3 in 704.2 above:

  > **"Information for product use that is conveyed in a way that is uniquely tactility discernible, through physical arrangement or physical location, shall not be required to conform to this provision."**

- Regarding Provision 802.2.3 "Hardwire Adapter", we would appreciate clarity as to whether the Access Board believes such an adapter must be provided at no additional cost. Perhaps there is a distinction to be made for 508 vs. 255 application of this provision?

- Regarding Provision 802.2.4 “Wireless Adapter”, must a wireless adapter be included with every non-public ICT product that uses audio? For example, must an ICT alarm clock include a wireless adapter (cf. The Chumby at http://www.chumby.com/)? What about a laptop? Or must the product provide a port to which a wireless adapter can be attached (and note: this can be done with any devices that support 802.2.2). Also, if built-in wireless capability is required, along with hands-free connection of that wireless connectivity, then this provision is not parallel with the broader Functional Performance Criteria 202.10 which has explicit exceptions for initial connection, configuration, and setup.

VII. Issues Relating to When a General Purpose Computer Becomes a Telecommunications Device or a TV

A number of technical provisions in Chapters 6, 8, and 9 speak to situations typically involving consumer devices – like televisions and telephones. However, the provisions are written very broadly. In a number of cases, the draft language of these provisions might be erroneously interpreted to include general purpose computers – and even servers – due to how the capabilities of these general purpose devices can be extended through the use of additional software that is often incidental to the primary or designed purpose(s) of the device.

For example, many servers in data centers include a DVD drive. Where the operating system of the server is one of the Windows Server family of products, or Oracle Solaris, or GNU/Linux – among others – such operating system software typically includes the ability to play DVD movies. The intended purpose of the server is clearly not for consumer playback of movies on the server console. The DVD drive is present in order to read an operating system image that is too large to fit on a CD (or perhaps to read other data files). Playing back a movie on the console is incidental use of the ICT. Should such a server be required to have a Closed Caption button (when the DVD drive, as made by the OEM, includes a volume dial on the front bezel)?

Similarly, there are numerous occasions when the introduction of 3rd party software can extend the set of things general purpose ICT can do. Determining which party introduced the additional software, and whether such software is important to the procurement, is also significant with respect to the provisions noted below. As an example, vendors of a PC might add trial editions of third party software – backup software to accompany a DVD burner is one common one – that are not supported or warranted by the PC manufacturer, and certainly not by the OS vendor. Should such trial-edition software be subject to accessibility requirements, particularly if a federal agency has its own enterprise-wide backup solution? In these circumstances, the agency is clearly not intending to procure individual end-user backup software.

- To address this concern, we propose the addition of a new pair of terms: “Primary Purpose” and “Incidental Use”, which would then be used in the technical provisions cited below.

- *Proposed new definition: "Primary Purpose"*

  Primary Purpose: a purpose to which an ICT product is explicitly designed to meet. Such purposes are typically part of the sales or marketing materials for the products, part of the specifications information, and for which service and support is offered from the ICT vendor. Examples of primary purposes include producing documents from an office suite, or manipulating files for a desktop operating system. Irrespective of the above, if a purpose is expressly noted in a federal procurement, it shall be considered a primary purpose of the procured ICT.

- *Proposed new definition: "Incidental Use"*

  Incidental Use: a use of the ICT for which it was not designed. Such uses fall outside of the sales or marketing materials of the product, fall outside of the product specifications information, and are not eligible for support from the ICT vendors. Examples of incidental uses include games included with a data center server, playing DVD movies from a DVD drive included with a data center server, end-user VoIP communication from a file server, or a phone behaving like an piano.

- For the situation of a general purpose device being considered a purpose-designed media player (Chapter 6), we propose the following change to provision 607.1 "User Controls for Captions and Video Description". This change should then flow to 607.2 "User Controls Location", so that general purpose ICT hardware that gains the incidental functionality of playing videos isn't required to have a physical caption and video description controls.

  607.1 General. ICT [whose primary purpose includes] <~~that~~> displays[ing] video with synchronized audio content shall provide user controls for closed captions and video description that conform to 607 and Chapter 3 (Common Functionality).

- In circumstances where a general purpose device is being inappropriately considered as purpose-designed for two way voice communication, we propose a change to provision 803.2.1 "ICT with Two Way Voice Communication". This change addresses the situation in which a third party might add two way voice communication software (e.g. an application like Skype or Ekiga) after the fact to general purpose hardware – which wasn't expressly designed with the purpose of being hardware for two-way voice communication. Such general purpose hardware may not expose a sufficiently adjustable volume range; likewise the dedicated two way voice communication software may rely on (or be limited by) the volume adjustability of the underlying hardware – which would make complying with this provision as drafted problematic.

803.2.1 ICT with Two Way Voice Communication. ICT [whose primary purpose includes] <~~with~~> two way voice communication shall provide a volume gain that is adjustable to a minimum of 18 dB over baseline volume. The baseline volume shall conform to ANSI/EIA-470-A-1987 (for analog telephones) and ANSI/EIA/TIA-571-1991 (for digital telephones) (incorporated by reference, see "Referenced Standards and Guidelines" in 508 Chapter 1 and 255 Chapter 1).

- For the situation of a general purpose device being inappropriately considered as purpose-designed for VoIP, we propose changes to the provisions in Chapter 9. These changes address the situation in which a third party might add two way voice communication software (e.g. an application like Skype or Ekiga) after the fact to general purpose hardware – which wasn't expressly designed with the purpose of being hardware for two-way voice communication. They also address a situation in which a fourth party might provide VoIP interconnection service (e.g. a PSTN gateway to/from the VoIP system, developed apart from both the creator of the VoIP system and the creator of the hardware). The specific suggested changes are as follows:

  902.4 Interoperability with Outside Systems. When ICT interoperates outside of its closed system, or when ICT connects to other systems, ICT shall conform to 902.4.1 through 902.4.3.

  [Advisory to 902.4: This provision shall only apply when the interoperability functionality is provided directly with the VoIP ICT, or in the case of a federal procurement, when interoperability is part of the primary purpose of the procurement.]

  902.6 Real-Time Text in Voice Terminal Hardware and Software. Terminal hardware or software [whose primary purpose] <~~that~~> is <~~capable of~~> providing voice communication in real-time shall conform to 902.6.1 or 902.6.2.

  905.1 General. ICT that is used for video communication in real-time between and among individuals shall support interoperability that permits video communication between and among users of terminals from different manufacturers and service providers, and shall conform to 905.

  [Note: Unless procured specifically for the purpose of video communication in real time, general purpose hardware does not need to comply with 905.2 "Audio Output and Input", or and of the provisions under 905.3.2 "Video Display Quality".]

  905.4 Non-Auditory Alerting System. ICT shall provide a non-

auditory alerting system for incoming video communications that conforms to either 905.4.1 or 905.4.2, [for ICT whose primary purpose is video communications.

Advisory 905.4 Non-Audio Alerting System. Many platforms provide support for a "video bell", in which one or a range of audio alert sounds may optionally trigger a video flash (of the menu bar, or the entire screen). ICT video software that generates audio alerts that are compatible with the desktop platform "video bell" support will satisfy this provision.]

905.6 User Controls. When ICT provides user controls, privacy features that include audio and video on and off shall be provided. [Note: on general purpose hardware that is used for interconnected VoIP through the addition of VoIP software, only the VoIP software needs to conform to 906.]

907.2 Alternate Alerting System. For incoming communications, ICT shall provide an alternate alerting system conforming to either 907.2.1 or 907.2.2 [for ICT whose primary purpose is video communications.

Advisory 907.2 Alternate Alerting System. Many desktop platforms provide support for a "video bell", in which one or a range of audio alert sounds may optionally trigger a video flash (of the menu bar, or the entire screen). ICT video software that generates audio alerts that are compatible with the desktop platform "video bell" support will satisfy this provision.]

VIII. Issues Relating to Text Size, and the 20/70 vs. 20/200 question

In addition to the modification of the of 202.3 "With Limited Vision" (as compared to §1194.31(b)), numerous other provisions address the issue of users with limited vision.

We have a number of concerns with these provisions:

- Shifting to 20/200 from the previous 20/70 in 202.3, the functional performance criteria are no longer in harmony with the related technical provisions. Meeting the various technical provisions relating to text size (e.g. 403.3 "Resizable Text", 404.5 "Visible Keyboard Focus Indicator.", 504.2.2 "Text Contrast Ratios", 504.3 "Resize and Reflow Text", 704.3.1 "Text Attributes", 704.3.2 "Contrast Ratio for Images of Text") would not be sufficient to meet 202.3, because all of the technical provisions are written to the 20/70 standard.

  We therefore recommend restoration of the 20/70 standard in 202.3.

- The text resize provisions – 403.3 "Resizable Text" and 504.3 "Resize and Reflow Text" – apply to all text, even text that is already large print. Such text doesn't

need to be resized, and resizing it would in some cases make the system less usable (by consuming too much screen real estate). Further, in the case of 403.3, the better approach is to require compliance with any platform-wide large-print themes.

Separately, in the case of web content and 504.3, it is common for portions of a web page to have a fixed minimum size. There should be some recognition of situations in which this is needed and exceptions created for this (for example, a calendar widget appearing on a web page should not be re-flowed such that a row has less than 7 days in it). In such situations, horizontal and vertical scrolling should be allowed, without the need to reflow.

- We recommend adding the following language to 403.3:

  Exception: 2. Text that is already viewable by someone with 20/20 vision at 3.5 times the typical viewing distance does not need to be resizable.

  Exception: 3. Text on an fixed size, segmented LCD display, does not need to be resizable.

- We recommend adding the following advisory note to 403.3:

  “Compliance with a platform-wide large print theme (that is at least 200% of the default) satisfies this provision, when applied to text content as well as the rest of the ICT user interface.”

- We recommend adding the following advisory note to 504.3:

  “In cases where enlarging the text of content would cause reflow to break up blocks of text or other content that should remain together to be understandable (e.g. a calendar), reflow isn't required and scrolling or other techniques may be used instead.”

- Provision 404.5 “Visible Keyboard Focus Indicator” is too vague, and fails to provide sufficient guidance as to what constitutes a visible focus indicator (particularly for either 20/70 or the 20/200 level of vision). This is also the case in the reference to the text insertion point / I-beam in the Advisory note. A single pixel wide border for a focus indicator “visible” to some people, but not to others. Likewise a single pixel wide flashing insertion point.

  - We recommend adding the following to 405.5:

    “Note 1: The presence of a highly visible text insertion point is sufficient for a text area.

    Note 2: A focus cursor that is visually locatable at 3.5 times the typical viewing distance without moving the cursor by people who have unimpaired vision and are familiar with what the focus cursor looks like is sufficient. For example, when software is

displayed on a 38 cm (15 inch) diagonal screen at 1024 x 768 pixels resolution, a focus cursor that is visually locatable at 2.5 meters without moving the cursor by people who are familiar with what the cursor looks like and have unimpaired vision is sufficient.

Note 3: This can be provided by the interface itself or by the interface in combination with focus services provided by the platform."

- Provision 504.2.2 "Text Contrast Ratios" is unnecessarily limited to electronic documents. It should apply to all text displayed on a screen. We recommend moving this provision to Chapter 4, or perhaps Chapter 3.
- Provision 704.3.1 "Text Attributes" was discussed above in the Section "Issues relating to Hardware" – we recommend there be an exception made for text on buttons that can be uniquely tactility discernible. Beyond that, this provision makes no allowance for the typical viewing distance. Also, for text on hardware that can be held close to the eyes, (e.g. a mobile phone), 3/16" is far larger than necessary for 20/70 vision.

IX. Issues Relating to Voice over IP & Real Time Text

Issues of ICT convergence are a major them of this refresh of the 508/255 provisions. The ability to making telephone calls over IP networks is one of the main facets of that convergence. Beyond the issues relating to general purpose computing & VoIP raised in the Section "Issues Relating to When a General Purpose Computer Becomes a Telecommunications Device or a TV", there are several specific issues around the VoIP provisions in Chapter 9.

- Regarding Provision 902.3.2 "RTT Transmission Delay", note that the RTT system performance characteristics may be a function of how the system is installed, and beyond the control of the vendor of any portion (or even the entirety of) the RTT system. For example, the VoIP server (and RTT server) may not contain enough RAM or CPU to handle the communications load that an agency is putting on it. This also applies to 902.3.3.
- Provision 902.3.3.1 "Equitable Support for RTT and Video Communication" sets the bar for RTT function at when not only audio is able to function, but also when typically higher bandwidth video is capable of functioning. We recommend deleting "and video communication", or replacing the "and" with "or".
- Regarding Provision 902.5 "RTT Error Rate in Pass-through Products", note that as with 902.3.2, RTT system performance characteristics may be a function of how the system is installed, and beyond the control of the vendor of any portion (or even the entirety of) the RTT system. This could be made more clear by specifying that this provision applied to the RTT system as whole, as installed and configured.

- Regarding Provision 905.3.1 “Video Communication Data Processing”, note that as with 902.3.2 and 902.5, video system performance characteristics may be a function of how the system is installed, and beyond the control of the vendor of any portion (or even the entirety of) the video system.
- Regarding Provision 905.3.1.2 “Data Stream”, note that the requirement of 256 kbps full-duplex synchronous data stream bandwidth may be not be harmonized with the use of the term “broadband” in the definition of VoIP. As video is generally more bandwidth intensive than audio (at least at CIF format, 30 fps), why should video have a lower bandwidth threshold than VoIP, assuming the FCC definition of “Basic Broadband” of 768kbps?
- Regarding Provision 906.1 “General”, in the case in which disparate vendors create components that may be put together to create an interconnected VoIP system (e.g. a VoIP gateway that works with any of a variety of VoIP protocols,to which someone decides to connect a standalone VoIP software application that fails to meet one or more of the clarity or alerting provisions below), who has the responsibility for meeting these provisions? If the VoIP system was not designed to be interconnected, and therefore wasn't designed to meet this section, that should be OK (even if offered to the public for free or ad-supported or for a fee). Meanwhile, a VoIP gateway that supported one or more protocols, of which one was the VoIP system in question, might itself meet 906 for the functions that is provides. But it cannot improve the audio clarity of an audio stream that comes to it with poor clarity.

  We believe that a distinction should be made between a developed/procured/installed VoIP system under 508, and VoIP components not sold as an entire system. Another distinction should be made for these cases in the 255 context, particularly if multiple vendors are making the disparate components.

X. Issues Relating to ICT Documentation

Accessible ICT documentation, and documentation about ICT accessibility features, is an important aspect of deploying and using accessible ICT. Chapter 10 of the Proposed Provisions address this in a far more comprehensive fashion than was done in §1194.41. This expanded treatment raises a few questions and issues for us:

- In Provision 1002.2.2 “Features that Support Accessibility”, we would like a clarification and perhaps examples of what documentation describing ‘compatibility with assistive technology’ might look like. We fundamentally believe that conformance with these standards is the full extent of ‘compatibility’ that needs to be documented.

  We recommend the following change:

  > **“Documentation shall include descriptions of features that support accessibility, including the capability to change settings<~~, and compatibility with assistive technology~~>.”**

Failing that change, we recommend adding an advisory note that makes it clear that such compatibility documentation is limited to a description of the technical means by which ICT supports compatibility with assistive technology (e.g. describing which accessibility services are used).

- In the Advisory to 1002.2.2 “Features that Support Accessibility”, we note that the standard includes features that “may not be identified by the manufacturer as accessibility features” yet ‘”requires” that they be documented in the accessibility documentation. We are not clear how we can be required to do so, having not identified them as such in the first place.

  We recommend the following change to the second paragraph of the advisory:

  > **“There also may be features of a product which are useful for accessibility, even though they may not be identified by the manufacturer as accessibility features. Descriptions of these features are ~~<required>~~[recommended] to be included in the accessibility documentation.”**

- Regarding Provision 1002.2.4 “Keyboard Operation”, does documentation have to include all applicable keyboard features provided by the underlying platforms, or only those that are unique to the application? Does it need to replicate the quick keys already presented in the user interface, per item 404.4. Finally, on platforms where keyboard operability is provided through the use of assistive technologies (e.g. the Macintosh where full keyboard operability is present for the standard user-interface controls only through the use of the VoiceOver screen reader), must documentation of ICT software include documentation of the assistive technology? We believe that the responsibility of an ICT application is to document only the keyboard features that are unique to the application – and not those of the underlying platform.

  We recommend the following change:

  > **“Documentation shall provide information about operation of all features [arising from the ICT] that can be accessed from the keyboard, including available keyboard commands and keyboard navigation. [For ICT that is not a platform, this documentation does not need to include documenting those keyboard commands that arise from the underlying platform or user interface component set.”**

- Regarding the Advisory to Provision 1002.2.4 “Keyboard Operation”, please note that through the use of a sufficiently rich set of platform accessibility services, assistive technologies don't need to inject keystrokes to control the user interface. Rather, they can control the user interface directly via these services or APIs. This is already the case on the GNOME desktop via the alternate keyboard “GOK”.

- Finally, in the Advisory to Provision 1002.3.1 “Electronic Documents”, we

respectfully suggest that ODF be listed as an example of a valid alternate format.

XI. Miscellaneous Questions and Issues Arising From the Proposed Technical Provisions

Beyond the "thematic" issues discussed above, we also have a "grab bag" of miscellaneous questions, comments and issues arising from the Proposed Technical Provisions.

- Regarding Provision 305.1 "Not Only Color", it is actually "not only hue" that should be different. Sufficiently different saturation or brightness levels are distinguishable by individuals with color blindness. We recommend adding an advisory note to that effect (and not changing the text of the provision itself, as it is harmonized with WCAG 2.0).
- Regarding the Advisory to Provision Advisory 307.5.2 "Locking or Toggle Controls", the final example of using a mouse with a touch screen doesn't make sense to us. Perhaps a finger is meant in this instance?
- Regarding Provision 405.2.2 "Adjust", if the adjustment can happen indefinitely with trivial action of the user, we believe that this should also satisfy 405.2.1. For example, a screen unlock dialog appears with a timeout, where that timeout should never be turned off (eventually the screen should return to being blank or displaying a screen saver). If the timeout for entering a password is at least 20 seconds (complying with 405.2.3.1 below), and resets back to 20 seconds each and every time the user enters a single keystroke of their password, then we believe we have meet the user need without having to enable the user to explicitly turn this time limit off. An advisory note to 405.2 describing this situation would be one way of addressing this in the document.
- Regarding the Advisory to Provision 405.3 "Control Over Moving, Blinking, or Scrolling Information, and Automatic Updates Exception 1", we would appreciate the Access Board confirming that the appearance of an animated progress indicator – appearing while no other interaction with the application is possible – meets this exception.
- Regarding the Advisory to Provision 405.3 "Control Over Moving, Blinking, or Scrolling Information, and Automatic Updates Exception 2", we would appreciate the Access Board confirming that the following example meets this exception: a total field is updated elsewhere on the page as a result of the user changing the value in a quantity field and either tabbing out of it or pressing a 'Update Total' button.
- Regarding Provision 408.2 "Input Error Identification and Description", does this invalidate "range correction"? E.g. when the user types in a number that is beyond the input range, does this provision make it an accessibility violation to clamp the value to that range (without giving an error)?

- Regarding the Advisory to Provision 503.1 “General”, please note that according to 409.2 it is the job of applications to provide a mode of operation that uses user preferences of the platform for color and contrast (among other things). This example of a web site suggests that the best practice is for the web site to take on this job, vs. the web content not hardcoding font & contrast information, and the web browser picking up the desktop setting for high contrast and applying it to the rendered website. We disagree, and feel the best practice is for the user's platform settings to apply through to content.
- Regarding the Advisory to Provision 505.4 “Headings and Labels”, we believe this provision is too vague and broad (applying to all electronic content) to be effectively applied. It is also too subjective. We suggest it be removed, or failing that rewritten to be more concrete (rather than with language like “when appropriate to the task”).
- Regarding Provision 508.2 “Markup Language Used According to Specification”, we believe the title is misleading and inappropriately prescriptive. We recommend it be reworded to: “Use of Markup Language”.
- Regarding Provisions 508.2.2 “Nesting” & 508.3 “User Interface Components”, we recommend that the text ‘be used according to their specification and shall’ be removed. It is quite possible to create accessible HTML content without perfectly following the HTML specification. The Proposed Provisions should be concerned solely with ICT accessibility, and not address issues outside of that scope. Also please note, as currently written, the use of WAI-ARIA is in violation of the HTML spec.
- Regarding Provision 608.2 “Independent Selection”, this requires not only that the audio-video content format is capable of multiple audio tracks, but further that the the format provides a way for these tracks to be tagged as being “speech only”. In fact, it further requires audio track to be tagged as to the [primary] language of the speech, whether the track is [potentially one of several] video description track(s) [in potentially one of several languages], etc. Without those necessary prerequisites, it won't be possible to meet this provision. Thus, to be workable, another provision must be introduced around content formats to require that there be a way to tag an audio track as a/the “speech track”. Alternately, reword this provision to state that this must be done only when the audio / media format supports it.
- Regarding Provision 704.1 “General”, as the Advisory to 704.2 “Accessible Mode for Text, Images of Text and Symbols” makes clear, this may be for text associated with documentation. It would be helpful of this provision was more clearly scoped (e.g., what other sorts of non-software text does it apply to?).

XII. Comments and Recommendations re: General policy Provisions (Chapters 1-E and 1-C)

The Exception for Products Located in Spaces Used Only by Service Personnel Should be Rewritten, Not Removed

The current standards contain six general exceptions and the Proposed Provisions retain only two of them unchanged. The response to Question 6 below comments on two of the proposed changes. However, there is a change with respect to one exception that deserves particular scrutiny. Section 1194.3(f) currently states that products located in spaces used only by service personnel for maintenance and repair need not be accessible. The Proposed Provisions delete this exception in its entirety with the rationale that "the Board believes this provision is unnecessary since most functions can be accessed remotely." Oracle is convinced that this limited exception for service personnel is needed and the proposed deletion is over broad and problematic.

The reference to remote access can be accommodated without the complete deletion of this important exception. This exception addresses a critical need. Physically tall server and storage products are expressly designed to take full advantage of the height of large data centers. These products would have to be completely redesigned in order to comply with the ADAG reach requirements (ANPRM provision 702 and the referenced 36 CFR Part 1191 Appendix D, Section 308). The TIA standard for data centers[2] requires a minimum ceiling height (from the finished, raised floor) of 8.5 ft (see section 5.3.4.3 "Ceiling Height"). Further, with the advent of sophisticated cooling systems, we typically see much taller ceilings in larger data centers, with chillers sitting on top of server racks reaching to over 9 feet tall.

For example, the typical Sun Oracle server rack[3] is 78.7 inches tall, with the topmost of the 42 usable rack slots at ~75 inches above the floor—above the ADAG reach requirements). The StorageTek modular tape library system[4] is 93.15 inches tall, and has slots for inserting/removing tapes and performing other maintenance functions that are likewise above the ADAG reach requirements.

Deleting the exception for service personnel would involve a massive redesign and retooling effort to replace these large server and storage products with ones whose operable parts are all within the reach guidelines. Compliance could only be achieved with extraordinary cost to industry and in turn to the purchasing agencies. Another adverse consequence would be dramatic increased expenses for Federal agencies that would compromise roughly one-half of the usable space of all of their data centers.

The benefit realized as a result of this incredible cost would be minimal. The proposed change would open up to some people with disabilities a miniscule fraction of federal jobs that require actual physical interaction with these servers.

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2 See TIA/EIA-942, at http://www.nvadvisors.com/TIA-942.pdf

3 See http://www.oracle.com/us/products/servers-storage/servers/rack-cabinets/035937.pdf

4 See http://www.oracle.com/us/products/servers-storage/storage/tape-storage/034341.pdf

Interestingly, the stated objective of the Board for deleting the exception can be achieved without the adverse consequences. As noted above, in suggesting the deletion, the Board referred to the fact that most of the service functions can be accessed remotely. This observation may be true, but it is certainly not the case for all functions. A rewrite that deals with remote access rather than deletion of the entire exception is the appropriate resolution, as was recommended in the TEITAC report. We therefore strongly recommend that a carefully written and narrowly tailored exception be included in the Section 508 standards. The recommended language is follows:

> **Those portions of products whose design limits physical access, and that are only accessed for maintenance, repair, or occasional monitoring are not required to comply with this part. This part does apply to the functionality of such products where that functionality could be executed externally or remotely.**

The above language would still require that the vast majority of interaction with these devices – done remotely over network connections – would be covered by Section 508 and IT jobs related to these devices would be open to employees with disabilities. The exception would only still apply for physical interaction for maintenance, repair, or occasional monitoring. This objective of Section 508 would be served without the significant adverse impact discussed above.

Potential Confusion with the Components of an ICT System in the Advisory to E103.2.2

The Advisory to E103.3.2 “Components of an ICT System” includes an example of “ICT that is a system of interoperable parts” – a personal computer. The Advisory goes on to explicitly list a number of those parts which are explicitly required to conform to “the applicable provisions of this part”. Among that list is the “CPU”. Then the Advisory explicitly exempts another component: the motherboard, claiming that it is “inside the CPU”.

In common ICT understanding[5], the CPU is the microprocessor itself, which is something that commonly sits on top of the motherboard. As such, it too is “inside the box”, and should be exempt from “the applicable provisions of this part”. Perhaps the Access Board meant to say the external housing of the personal computer in this example?

The Reference to Pre-existing ICT in E103.4.1 Introduces an Important Recognition of How Major ICT Installations Function Over Time

The text of E103.4.1, including particularly the Advisory to E103.4.1 with its reference to “'patches' to fix minor software errors”, addresses an important topic: that it is common for major ICT installations to be maintained for a long period of time, with software patches being provided to keep stable systems running for years if not decades.

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5 See wikipedia definition of “CPU” at http://en.wikipedia.org/wiki/CPU

One challenge with the language of the advisory is the question of when a system is "near the end of its life expectancy". For example, Oracle Solaris 8 was introduced in February 2000, and it remains a supported operating system more than a decade later, with customers continuing to receive patches to maintain installed and stable systems in commercial and government installations. Yet Solaris 10 is the current offering, with development proceeding for the release after that. Similarly numerous Oracle customers remain on Java version 1.4.x, even though Java 6 is the current released version and Early Access editions of Java 7 have been available for some months.

It is therefore important to give agencies wide latitude in retaining existing and stable systems – potentially indefinitely – through patch upgrades without requiring a potentially expensive and destabilizing upgrade to meet the Section 508 standards.

Also, agencies may install current releases of applications (e.g. Firefox, Oracle Open Office) on top of significantly older releases of operating systems such as Solaris and Linux. In cases such as this where the accessibility of applications are realized through the Accessibility Services of the underlying platform, newly acquired/installed applications will be unable to be made accessible when running on older, inaccessible platforms and operating systems.

Oracle looks forward to working with the FAR process on this issue, particularly around the definitions of 'patches', 'minor errors', and 'significant upgrade', noting that thresholds may vary significantly depending on the nature of the product and the impact of the change to the entire ecosystem of users.

Clarification is Needed with Respect to Use of ICT by a Federal Contractor referenced in E103.4.2

If a contractor uses a Projects system to record time spent while fulfilling a contract, would that Projects system be covered by this clause? If a contractor acquires a development tool that does not itself meet these standards, but the deliverable of that tool does meet the standards, is this clause satisfied? When ICT that is used to fulfill the contract does not fully meet these standards, how exactly are criteria such as 'undue burden', 'best fits', 'pre-existing ICT', etc. to be applied to that contractor?

Oracle believes that only the 'deliverables' of a contract should have to meet these standards. For example, project planning software (e.g. Microsoft Project) is a challenging type of application to make accessible to screen readers. Even more challenging is to make CAD software for microprocessor design accessible. As written, this provision would bar internal use by a contractor of inaccessible CAD software used internally to design the chips supplied in hardware ICT – let alone the project planning software – both of which are never shared with or used by the agency.

We therefore recommend the language be changed to:

> **"E103.4.2 Federal Contracts. This part applies to [all delivered] ICT that was procured, developed, maintained, or used by a contractor under a contract with an agency that requires the use of such ICT in**

the performance of specifications or deliverables under the contract."

Need Clarification of the Statement about Relationship Between the Technical Provisions and the Functional Performance Criteria in E103.5

Oracle appreciates this clarification, which matches our interpretation of the existing Section 508 standards. However, it is not clear what is meant by 'fully addressed'. For example, in the case that a particular technical standard is deemed applicable to a product, but a very small number of specific defects are noted as a result of testing, is that an example of failing to be 'fully addressed' such that the agency must look to Chapter 2 (e.g. a test results note a single component in the user interface that isn't 'fully' operable from the keyboard)? If so, are those functional standards only to be applied to the technical standard with the known defect, or all applicable technical standards (even those claiming to be in full conformance)? Must all functional performance criteria be evaluated, or is there a specific relationship between each technical standard and one or more of the functional performance criteria (note that the TEITAC report provided a table indicating such mapping). Lastly, what is the intent of the phrase 'need not' in terms of agencies applying these criteria; is it left as an option for each agency to use these as additional criteria during evaluation even if all of the technical criteria are met?

To address these questions, we request the Access Board to:

- Define "fully addressed", noting that zero defects may be an unrealistic goal in extremely complex applications.
- Clearly identify the relationship between each technical standard and its applicable Functional Performance Criteria.
- Address the intent of the phrase "need not".

Further, regarding E103.5.3 "Evaluation of Failures Against Technical Provision", Oracle believes this needs to be scoped only to "applicable" technical and functional provisions. We therefore recommend that E103.5.3 be changed to:

> **'If any of the applicable technical provisions in Chapters 3 through 9 are not met, the [applicable] functional performance criteria in Chapter 2 must be used to evaluate if access is provided in another way through E106 Equivalent Facilitation."**

Can a Claim of Fundamental Alteration Can Only Come from the Procuring Agency, regarding E105.1

We note that this is a requirement on the procuring agency. Can a vendor make a claim of 'fundamental alteration' in any product it sells (via whatever agreed-upon method of claiming conformance), or is it solely up to an agency to make this assessment in light of the particular procurement at hand?

We recommend that the Access Board provide examples of a fundamental alteration via an advisory note to this provision. We also ask the Board to also consider addressing

how a vendor would apply this standard when reporting conformance.

Further Clarification Sought Regarding the Use of Equivalent Facilitation – E106

In conjunction with E103.5.3, there is the issue of reporting 'failures'. If a technical standard is not met *to the letter*, but upon evaluation using the functional performance criteria it is met, how is this to be reported? If a technical standard is met using a technique that differs from how a precise reading of that standard, how is this to be reported? Is a claim of meeting by use of equivalent facilitation any less 'correct' than by meeting the standard directly? We are aware of certain agencies requiring updating of any product that utilizes equivalent facilitation.

Oracle's Java platform utilizes its own technique for rendering text to the display (bypassing the "operating system functions for displaying text"). This is not in compliance with a literal reading of Section 508 §1194.21(f). However, more than a decade ago Oracle defined a set of Accessibility Services for the Java Platform – the Java Accessibility API – which is now the approved technique for exposing text information to assistive technologies in these Proposed Provisions, and is how text on the Java platform is made programmatically determinable to assistive technologies and through them is made accessible to people with disabilities. Under the current standard, this would be an Equivalent Facilitation. Today there are agencies in the Federal Government who view this situation – and similar citations of Equivalent Facilitation – as in need of remediation.

We request that the Access Board state explicitly that ICT utilizing Equivalent Facilitation to meet either the technical or function performance provisions is ICT that *does affirmatively meet* the provisions in question.

Additional Questions Arising From WCAG 2.0 Harmonization – E107

Beyond what is contained in the Section "Issues Related to WCAG 2.0 Harmonization & Web", we have a few questions about the language in E107.

- The use of the phrase "web pages" in this context is unclear. Generally vendors of applications do not themselves create "web pages." Vendors often create products that may include user interfaces that are used via a web browser, as applications that are capable of authoring web pages, or contents within a web page. W3C guidance for how to make a conformance claim in this situation is unclear.
- The meaning of the word "corresponding" is unclear. Particularly, if a "web page" fails to comply with a specific WCAG 2.0 success criteria at the AA level, may it substitute compliance with the "corresponding" Chapter 4, 5, or 6 provision? Or must it then comply with all of the provisions in 4, 5, and 6? If the former, then there should be a mapping between WCAG 2.0 success criteria and the provisions in Chapters 4, 5, and 6.

Further, while Oracle very much appreciates and supports the language enabling an ICT

product of using WCAG 2.0 AA conformance as a way to meet the provisions in Chapters 4, 5, and 6, we have concerns around how this is to be implemented:

- WCAG conformance claims relate to "web pages", so as a vendor of a product where such product is not yet installed, it is not clear that such a conformance claim could be made in the first place. This is an issue we have raised with the W3C. Using a well designed web application, it still possible to install and configure it such that it serves web pages that are not in conformance with WCAG 2.0 AA.
- WCAG 2.0 conformance claims require perfection: all applicable criteria must be fully met, with no ability to account for any exceptions. In contrast, through the VPAT industry typically flags ICT products as "meeting", or "meeting with exceptions", the various technical provisions. Where WCAG 2.0 AA perfection isn't reached – a "meet with exceptions" situation – how should that be addressed? (see our comment in the section above around "corresponding").

Oracle is very interested in the potential for using WCAG instead of the provisions in Chapters 4, 5, and 6 for Web applications. We encourage the Access Board to discuss these issues with the WCAG working group, and we welcome discussions around how such a conformance claim could be united with the VPAT mechanism used in 508 procurements.

The Reference to the Business Needs of Agencies in E108 Provides a Helpful Clarification

The introductory explanation of the Proposed Provisions states that the new "Best Meets" section is "substantively unchanged from the current standards." 75 Fed. Reg. No. 54 at P. 13461 (March 22, 2010). The proposed E-108, titled "Best Meets," states that if ICT is commercially available that "meets some, but not all of the provisions, the agency must procure the product that best meets the provisions of this part, consistent with the business needs of the agency." There is an advisory note to this section which reads "Nothing in this part shall be construed to require agencies to procure ICT which does not meet the business needs of the agency."

The new proposed E108 does have a subtle but nonetheless significant addition that should prove to be a helpful clarification to the procurement process. The present provision reflecting the "Best Meets" concept is contained in Section 1194.2(b). The section contains language that is quite similar to the proposed E108. However, as quoted above, the proposed provision adds the phrase "*consistent with the business needs of the agency.*" (Emphasis added). This added phrase appears to emphasize the discretion of the agency to evaluate its needs. The present standard, read literally, could be interpreted to impose a formulaic requirement that the degree of Section 508 compliance dictates that the product that must be procured, if commercially available products meet some but not all the standards. For example, if one product fails one standard and another fails two standards, is the agency mandated to only purchase the latter product? It does not make sense to simply assume that the latter is superior even in terms of overall

accessibility – that may not be the case at all. Further, to place all other procurement evaluation issues aside and decide only on the number of standards complied with does not make sense. The addition of the reference to the "business needs of the agency" confirms our understanding of the actual policies in effect today and clarifies the flexibility that agencies need for sound implementation of Section 508 standards.

Questions Relating to Support Services and Materials, from E109

With respect to Alternate Methods of Communication (E109.2), must technical support address every possible method of communication, or may it meet the standard by providing a single mode of communication that is commonly used by each class of disability? We request that the Access Board clarify what level of "alternate methods" are acceptable, and we recommend that this provision be scoped to "at least one alternate method".

As written, Alternate Formats (E109.3), raises several questions:

- Are all formats enumerated in the advisory required? Can the requirement be met solely by providing 'electronic content' that meets applicable standards? Does the best practice of providing content in electronic format as mentioned in 1002.3.1 apply here?
- Can the alternate formats from a vendor be provided at additional cost?
- Are these alternate formats available 'upon request', or must they ship with the product?

Comments about the Definitions, taken from E111

Where they aren't otherwise commented on above, below are our comments & questions about the definitions.

In the definition of "Assistive Technology", it is not clear what 'customized' means in this context; is this meant to imply AT that is not 'traditional' or 'mainstream'? Where integration with AT is implied or required, is such integration expected for 'customized' AT? Additionally, where AT functionality is a subset of a product, does that make the entire product 'AT'? This is particularly important when assessing those situations where a standard must be met 'without relying on assistive technology.' We would appreciate it if the Access Board would clarify the meaning of 'customized' in this context, and also clarify the scope when a subset of functionality of a product offers AT functionality.

- In the definition of "Electronic and Information Technology (E&IT)", it is not clear whether this definition includes assistive technology (AT) itself. This clarity is needed in order to ascertain whether AT is required to adhere to all of the same standards as, for example, a 'software application' (or must AT only comply with 412).
- Regarding the definition of "Specialized Customer Premises Equipment", it would be helpful if the relationship between Specialized Customer Premises Equipment

and Assistive Technology were made clear. Is the former a subset of the latter? Is the latter, when combined with a mainstream telecommunications product (e.g. VoIP software) an instance of the former?

- Regarding the definition of “Telecommunications Manufacturer”, a vendor who bundles together telecommunications software (e.g. open source VoIP software) with their product (e.g. a UNIX or Linux desktop operating environment) should not be considered a 'final assembler' and thus a Telecommunications Manufacturer. Likewise, a desktop computer manufacturer whose included desktop operating system includes VoIP software should not automatically be considered a Telecommunications Manufacturer. Such vendors/manufacturers should not be covered by Section 255 requirements – and in turn must meet all of 255 Chapter 1: “Application and Administration” including specifically things like C107.

  Oracle believes that simply bundling VoIP software – particularly when it is incidental to the use of the hardware product – shouldn’t automatically turn that vendor into a Telecommunications Manufacturer. Therefore, we recommend the clarification that the following sentence be added to this definition:

  Note: a reseller who simply bundles VoIP software with a computer shall not be considered a Telecommunications Manufacturer.

- The definition of “Typically Held to the Ear.” suggests that the device need not be “held” to the ear, but rather placed there (e.g. a headset). Is this intended? If so, is it intended that all of the provisions in section 803 (volume gain, min & max, automatic resets) would apply to audio output jacks, to which headsets are typically connected?
- Our reading of the definition of “Voice over Internet Protocol (VoIP) Service” restricts VoIP to only that VoIP which 'requires a broadband connection'. Broadband is not defined in this document. Does this document rely on the FCC definition of “Basic Broadband” (at least 786k bit/s), or some other definition? If the VoIP software used in 'VoIP service' has sufficient compression such that it can work effectively at a lower connection speed threshold than 'broadband', is that service therefore not 'VoIP service' and so exempt from all provisions referring to VoIP?
- The term “Text Telephone” is not found in most dictionaries. It would be helpful to have it defined.

Some thoughts about Referenced Standards, relating to Section E112

The Proposed Provisions make significant reference to and use of industry and international standards, including a number of standards explicitly about ICT accessibility. This is very positive, as it aids worldwide harmonization and thereby lowers the cost of achieving ICT accessibility while maximizing the likelihood of

realization of it.

As has been clearly demonstrated by the very activity of the refresh of the Section 255 /508 accessibility standards and guidelines – technology continues to rapidly evolve. To better "future-proof" these Proposed Provisions, we recommend that the Access Board encourage the evolution of ICT standards relating to accessibility, and to explicitly accept the use of later versions of the referenced standards by ICT vendors. This might be done by adding an advisory note to E112.2 "Reference Standards or Guidelines" or otherwise modifying the body of the provision, to explicitly accept revised editions of the specific standards or guidelines listed in this part.

Regarding that specific list of standards and guidelines in E112.2.x, we ask that the Access Board review the work of ISO 13066, which is being developed through an industry-advocacy-assistive technology collaborative effort in order to define what is needed for ICT-AT interoperability. Should ISO 13066 be finalized prior to the Rulemaking related to these Proposed Provisions, please consider adding it to the list of standards, and consider whether it might be used similarly to WCAG 2.0 AA as an alternate means of complying with a number of the provisions in Chapter 4.

Finally, we note what is likely an editorial error in the Advisory to E112.2.1 "ATCS", in which the words "preprocessing" and "pre-processing" both appear – once with a hyphen and one without.

Issues Around What is Covered Information and Communication Technology from Section C103.3

Some of the provisions in this section, and much of the rest of this document, apply to ICT itself; other provisions in this section (e.g. C107) apply explicitly to the manufacturers of ICT and their ICT development and support processes. The question of when an ICT manufacturer of a product designed for general purpose computing becomes subject to the "Chapter 1-C" Provisions is a critical one.

We explore this in more detail in the section above "Issues relating to when a general purpose computer becomes a telecommunications device or a TV". But to reiterate some of the key question: if a manufacturer creates VoIP software which is capable of being interconnected, even if they aren't themselves making the interconnection, does this chapter and particularly C107 apply to them? Is there any exception if the VoIP software is offered for free (perhaps supported by advertising revenue)? Is there any exception if the VoIP software is open source, without a clear single "manufacturer"?

We urge the Access Board to examine these questions and this issue carefully. There are numerous potentially unintended consequences of broadly identifying a large new group of ICT products as "Covered Information and Communication Technology", such as painting a large new group of ICT manufacturers as being "Telecommunications Manufacturers"

XIII. Comments and Recommendations Regarding the Functional Performance Criteria (Chapter 2)

The Functional Performance Criteria states in 202.1 “General” that “ICT shall provide access to all functionality…”. The use of the word “all” is problematic. To avoid a misapplication of these provisions to mean “all functions on all screens” must meet this part, we recommend either “...all of the product functionality...” or “...all of the marketed functionality...” or “...all of the supported functionality...” be used instead.

The Functional Performance Criteria contain several welcome additions:

- New provision 202.4 “Without Perception of Color” is an important addition that address a gap in the current Section 508 standard that was also missed by TEITAC.
- New provision 202.6 “With Limited Hearing” is likewise an important addition that address a gap in the current Section 508 standard that was also missed by TEITAC. We note that this Proposed Provision uses the word “or” when enumerating the tasks that the mandated mode of operation have: “at least one mode of operation which improves clarity, reduces background noise, ***or*** allows user control of volume”. However, the Advisory to 202.6 uses “and” in its related enumeration: “to provide at least one mode of operation in an enhanced auditory fashion by reducing background noise, improving clarity, ***and*** providing user control of amplification”. Oracle understands that “or” is what is intended, and recommend that the Advisory be changed to “or” as well.
- New Provision 202.9 “With Limited Reach and Strength” was broken out from 202.8 “With Limited Manipulation” from the TEITAC report. In doing so, the undefined term “limited” was introduced in the body of the Proposed Provision. This term should be defined explicitly. Note that it is also referenced in Proposed Provisions 307.3, 307.4, and 307.4.1.
- New Provision 202.10 “Without Physical Contact” is truly pushing the boundary of what even the most cutting edge assistive technology is capable of, and poses a number of challenges. It is not entirely clear what class of disability this is targeted at - is it someone that is unable to use their upper limbs? What about a device that is specifically intended to be held, like a cell phone? Is the intent to imply a requirement of voice recognition? Reading the advisory notes, it sounds like the intent is largely based on the ability to gain proximity to the device, as opposed to an inability to physically touch something. Please review our comments to 307.6.2 “Operation Without Physical Contact” in the section “Issues Relating to Hardware” above.

  We would appreciate a clarification that items such as the handling of paper and magnetic media also fall under this exception (e.g. is it necessary to provide a way

to load paper into a printer or mount tapes on a tape drive that doesn't require physical contact in order to comply with this provision?).

Without more clarity around these questions, we recommend removal of this provision.

- New provision 202.11 “Minimize Photosensitive Seizure Triggers” addresses a significant issue, introducing a functional performance criteria that was not in the TEITAC report, though the report otherwise addressed it through the tags noting where a technical provision addressed this issue. Particularly as there is no named technical provision referencing photosensitive seizures, a mapping between the technical & functional performance provisions is important for 202.11.

XIV. Conformity Assessment

- Although the ANPRM does not specifically cover assessment schemes for conformance with the proposed provisions (other than the exception noted for WCAG2 conformance claims), we observed that several parties commented on assessment at the public hearings in both San Diego and Washington, D.C. There are several approaches to conformity assessment, but when deciding on an appropriate means a key principle is to consider and balance risk with the potential public and private economic cost implications that the proposal may have on particular products, industries, and services. Possible assessment models range from voluntary self-assessment and self declaration of conformance (SDoC), which is typical of lower-risk scenarios, to mandatory audit and certification, which is typical of higher risk situations. Oracle strongly believes that voluntary self-assessment is an appropriate and proportional scheme for ICT accessibility conformance assessment.

  A report by IDC put forth many arguments in support of self-assessment for accessibility, including:

- **Risks**: Consumer protection and safety are key to any decision about conformity assessment. Government and industry both share interest in evaluating the level of potential risk – adverse effects on users, third parties, the environment, and so on – associated with a product. Voluntary self-assessment and SDoC are mostly used for products and sectors that involve a low or medium risk to health, safety, and the environment. Mandatory audits and third-party certifications are appropriate for products with a strong potential to cause adverse effects if compliance is not strictly enforced.
- **Cost**: The costs of conformity assessment are typically passed on to consumers and taxpayers in the form of higher prices, fewer product choices, and higher taxes. Mandatory audits and certifications, especially third-party tests, tend to be expensive compared with voluntary and SDoC approaches to conformity assessment.

- **Competition**: Restrictions on suppliers' ability to compete are a significant argument against strict conformity assessment approaches. Flexibility and efficiency of product life cycles have a considerable impact on companies' ability to compete and on product characteristics. Companies strive to bring products to market first, which gives them an advantage over their competitors. Shorter, more innovative product development capabilities are key competitive factors. Any constraint that adds cost and time to product development negatively affects a company's ability to compete with those who are not subject to the same restraint. It also dampens product innovation, leading to fewer product choices for consumers. Consumers also bear the cost of lengthened product life cycles through higher product prices[6].

For the last 10 years, Oracle has used the VPAT – Voluntary Product Assessment Template –to convey product conformance status to our customers. The VPAT was developed by a joint effort of ITI and GSA, primarily as a way to simplify government market research on IT products. Oracle has extended this scope, using the VPAT as the sole means to communicate accessibility status to all of our customers worldwide, including referencing the VPAT within contracts and attaching to it the same warranty support that we would for any other aspect of our Support agreements. In short, Oracle stands by the claims made in the VPAT, and we will correct any deficiency that a customer observes in keeping with our standard Support policies, provided the customer is current on technical support. Should the Board choose to weigh in on this topic, we encourage you to not undermine the current option of self-assessment that we believe is working well.

XV. Answers to the Questions in the Preamble

- **Question #1, regarding the organization of the provisions by features/capabilities instead of by product**

  Oracle agrees with the approach of organizing the document by features and capabilities rather than by discrete product types. However, Oracle does have concerns related to the split between Chapters 4 and 5, as noted in our reply to Question #4 below.

- **Question #2, relating to implementation time frames.**

  Many enterprise-class applications have very long development time frames, on the order of 3 years or more, and implementation time frames of one or more years. The Access Board should take this into account, particularly with regard to E103.4.1 Pre-existing ICT as well as the concerns we have raised there regarding

6 "Using Appropriate Conformity Assessment Tools to Ensure Effective Consumer Protections." 2007. IDC. URL: http://www.itic.org/archives/articles/2007b/IDC_White_Paper_on_Conformance_Assessment_Nov2007.pdf

the definitions of “patches,” ”minor errors,” and ”significant upgrade.” Further, many agencies retain ICT products and particularly ICT platforms long after they have been supercooled by newer releases. Please also see our comments on this topic in the Section above titled “The Reference to Pre-existing ICT in E103.4.1 Introduces an Important Recognition of How Major ICT Installations Function Over Time”

- **Question #3, relating to the inclusion and location of advisory notes.**

  Although the document is long, the current location of the advisory notes is appropriate, and helpful to users of the standards.

- **Question #4, relating to the specific chapter-by-chapter organization.**

  Overall, the chapter-by-chapter organization makes sense and is a distinct improvement from the current 508 & 255. We endorsed the TEITAC recommendations of shifting to an ICT functionality organization vs. an ICT product organization. The twin pairs of Chapter 1s are likewise clear and a welcome approach to dealing with convergence in 255/508.

  However, as noted in our reply to Question #20 below and in our comments above in the section “Authoring Tools, Electronic Content, and the distinction between Chapters 4 & 5”, the distinction between Chapters 4 & 5 is difficult to understand. While the intent is evident – that of separating “simple” from “complex” – in practice the precise line between them is never clear. We recommend a number of changes in this document to remedy that.

  Further, there are a few places (noted in various sections above) where we believe specific provisions are in the wrong chapter (e.g. 307, 406.2, 406.4). Other shifting of provisions is important to support WCAG 2.0 harmonization (see the section above “Issues related to WCAG 2.0 harmonization & Web”).

  Finally, the Proposed Provisions should provide a comprehensive set of the minimum information that must be defined in a set of platform accessibility services. This comprehensive set should then be referenced as appropriate in defining requirements for particular applications, as is appropriate. Presently provisions relating to this minimum set are spread across two chapters where they are best concentrated in Chapter 4.

- **Question #5, regarding limiting electronic content provisions to certain official communications.**

  Please note our comments above in the section “Authoring Tools, Electronic Content, and the distinction between Chapters 4 & 5”, discussing the multiple and sometimes conflicting descriptions of electronic content in the Proposed Provisions. Regarding the specific questions regarding attachments to official email messages, records requested from the National Archives, and content in

social media sites: this is one of several topics that do not directly impact a vendor. It is unclear how an RFP would clearly enumerate the provisions that are applicable to a procurement with respect to this question. How can a vendor a-priori know whether a report or some other machine generated output will be attached to email or otherwise fall under the scope of "official communications"?

- **Question #6, regarding removing 3 exceptions from the 508 standard – including the exception relating to the location of products in spaces used only by service personnel for maintenance and repair.**

Among the changes in the general exceptions section, the Proposed Provisions remove the service personnel exemptions and "relocate' the exception for the incidental use of ICT by contractors. Oracle has concerns about these actions.

Products Used Only by Service Personnel. As discussed above in detail, Oracle questions the wisdom of deleting the exception relating to the location of products used only by service personnel for maintenance or repair. We have proposed language that accommodates the desire to open more positions to persons with disabilities without imposing the extraordinary adverse impact on the vendors or their agency customers.

"**Relocation" of the Incidental Exception**. Presently, there is a general exception for the contractor's ICT that is acquired or used "incidental" to a federal contract. The introduction to the Proposed Provisions states that the "incidental" exception has been "relocated" to the application section "which contains a provision specific to Federal contracts.(E103.4.2)." 75 Fed. Reg. March 22, 2010 at 13460. However, that section does not in fact contain the same exception for incidental ICT used by federal contractors. The relocation appears to more of a deletion than a rephrasing. In short, a reading of the proposed standard suggests, perhaps unintentionally, that there is a broadening reach of the regulations to cover essentially all ICT used by contractors in performing contracts, irrespective of the actual deliverables or the specific mandates in the contract.

One could foresee a host of complications arising from this expansive interpretation. If a contractor purchased noncompliant ICT for its own use prior to award of the government contract, would its use of such ICT in performing the government contract violate Section 508? How would the issues of undue burden apply in this context when the focus of that concept is on the challenges facing the agency, not the contractor? It is recommended that the standards be clarified to limit the application to the ICT of federal contractors that is delivered to the agencies or otherwise to be used by federal employees or members of the public seeking information from an agency.

- **Question #7, regarding WCAG 2.0 harmonization.**

  The Access Board's overall approach to WCAG 2.0 harmonization is a good one. Harmonization with WCAG 2.0 is very important, as it is fast becoming a worldwide standard. However, as discussed above in the section "Issues related to WCAG 2.0 harmonization & Web", we are concerned with the Access Board introducing U.S.-unique extensions to or modifications of WCAG 2.0. Oracle would like to see Section 508 specify that meeting WCAG 2.0 AA requirements is a fully sufficient substitute for Chapters 4, 5, and 6 for web content and web applications. To that end, we propose moving a few provisions out of those chapters, and modifying a few others for better harmonization.

  Furthermore, WCAG 2.0 and other standards should be referenced by a particular version or any later version of said standard (*e.g.*, WCAG 2.0 or later), thereby allowing evolution and improvement of those standards, and use of updated standards within the context of Section 508/255.

  Separately, we have a few questions arising from the text of E107 "WCAG 2.0 Harmonization", which we raise in the Section "Comments and Recommendations re: General policy Provisions (Chapters 1-E and 1-C)" above.

- **Question #8, regarding the definition of ICT.**

  We would appreciate clarity as to whether this definition is intended to include Assistive Technology. We discuss this issue in the sections "Platform/Application/Interoperability with Assistive Technology" and "Comments and Recommendations re: General policy Provisions (Chapters 1-E and 1-C)".

- **Question #9, regarding the definitions.**

  Several important terms are used without being defined. Above, we have proposed definitions for various undefined terms, as well as suggested modifications to existing definitions.

- **Question #10, regarding the implementation of the functional performance criteria in relation to the technical provisions.**

  E103.5 provides welcomed and needed clarification. However, please see our specific comments above in the section "The Statement about Relationship Between the Technical Provisions and the Functional Performance Criteria in Section E103.5 Provides a Welcome Clarification". We note that the Board has indicated that "it was important that functional performance criteria map to technical specifications," yet we find no such mapping within the Proposed Regulations. We agree that such a mapping is very important, and should be included in the final standard.

- **Question #11, regarding "With Limited Vision" (202.3).**

  Using 20/200 as the definition of "Limited Vision" in the functional performance criteria would change the mapping of these criteria with the technical standard. Various technical provisions of the Proposed Regulations specify requirements, such as minimum text size (704), and resizing of text up to 200% (403.3), that are designed to support limited vision up to 20/70. Also, further modifications or some exception must be made to hardware text size technical provisions, unless we presume a product like the Jordy[7] is to be used as an "assistive technology" for necessary 16-30x magnification.

  Given these challenges, we recommend staying with 20/70 as the criteria for "With Limited Vision". Retaining the 20 degree field of view addition poses no problems, so long as it is understood that a user might have to move their head to see something (e.g. a hardware warning indicator light) that isn't where they are presently looking.

- **Question #12, regarding "Without Perception of Color" (202.4).**

  Provision 202.4 is an appropriate addition to the functional performance criteria. However, please see our comment related to 305.1 "Not Only Color" in Section "Miscellaneous Questions and Issues Arising From the Proposed Technical Provisions", suggesting including an advisory note referencing the more precise "hue" instead of "color."

- **Question #13, regarding "With Limited Hearing" (202.6).**

  Provision 202.6 is an appropriate addition to the Functional Performance Criteria. However, please see our comment above in 202.6, suggesting the use of "or" rather than "and" in the enumeration of techniques for enhancing audio clarity.

- **Question #14, regarding "Without Physical Contact" (202.10).**

  There have been significant advances in assistive technologies for people who cannot operate a keyboard. However, these advances have occurred thus far only on desktop (and laptop) systems. Also, the range of disabilities among those who aren't able to touch ICT is fairly varied. We have a number of concerns about how to support this new functional performance criteria, which we describe in the section "Comments and Recommendations Regarding the Functional Performance Criteria (Chapter 2)".

  Note that a number of the techniques developed for hands-free interaction with ICT products may not be technically achievable on all ICT (*e.g.*, products that appropriately lack I/O connectors, or which have limited processing power), and it is important that this addition to the functional performance criteria not

7 See http://www.visual-techconnection.com/jordy.htm

inappropriately cause those products to fail to meet the standard. Therefore, we regretfully recommend removing this provision at this time, while we look forward to further advances in ICT accessibility.

- **Question #15, regarding cognitive disabilities.**

  The TEITAC committee struggled with the issue of cognitive impairments. While there is important research in the needs of cognitive impairment taking place (some of which was presented by Dr. Clayton Lewis during the TEITAC proceedings, others of which we are taking part in under the AEGIS project – see http://www.aegis-project.eu/), there is presently insufficient understanding of the best techniques and approaches to use to address the very varied needs of this population of users – let alone the necessary body of platform-wide AT for cognitive impairments – to include this in the functional performance criteria. Given that technical provisions should support each of the functional performance criteria, by implication there would need to be technical standards specifically meant to address users with cognitive impairments. As a result, we recommend not including this provision.

- **Question #16, regarding closed functionality.**

  To the specific question of whether "other means of assistive technology besides personal headsets" should be permitted under closed functionality – any technique that can provide effective access to a system should be permitted. To address this, we recommend (above in the section titled "Issues relating to Closed Functionality") a shift of the relevant provisions to focus on remedies for the specific functionality that is closed, as opposed to the draft language which assumes more of an all-or-nothing approach to AT interoperability. The above section on "Issues relating to Closed Functionality" also speaks to the more general question about the treatment of that topic in the Proposed Provisions.

- **Question #17, regarding new technical provisions (406.2, 406.3, 406.4) not in the TEITAC report.**

  As noted above in the section "Issues related to WCAG 2.0 harmonization & Web content", provisions 406.2 "Bypass Blocks of Content" and 406.4 "Multiple Ways to Locate Content" are fundamentally about electronic documents, and so belong in Chapter 5. We agree that they should be retained, but recommend that they be moved.

- **Question #18, regarding a requirement for assistive technology function.**

  We strongly support the inclusion of this provision. Agencies should only acquire AT under Section 508 that at a minimum uses the accessibility services exposed by mainstream ICT. Unless this is done, ICT that meets the technical standards may not result in something that – when used with procured/developed AT – provides

users with a system that is capable of meeting the functional performance criteria. However, if no AT exists which meets 412, but AT does exist that successfully works with the mainstream ICT, then it may be acquired under the Equivalent Facilitation exception. Also, we note that under other sections of the Federal Rehabilitation Act (e.g. 501, 504, 505), AT may be acquired if it is an effective and reasonable accommodation to enable an employee with a disability to work in the Federal government.

- **Question #19, regarding Authoring Tools.**

  The "cost" of adhering to this is difficult to determine, because of the inherent subjectivity of "prompting for accessibility." Many authoring tools already contain an "audit," that is manually invoked by the author and reports on a subset of accessibility standards (those that are readily programmatically determinable). Does such an approach satisfy the requirement? There is also a hidden cost to such features because they cannot possibly cover all the standards; an author may rely solely on what they report, failing to address other more subjective standards. In other words, there is a risk that the content author will simply seek to 'pass the test' rather than fully learn and address all applicable standards. Finally, as we have noted in our comments for 413.1, we would like to better understand the scope of what is an "authoring tool" (*e.g.*, is a programmer's Integrated Development Environment an "authoring tool"). Without such an understanding, we cannot estimate the costs of these provisions. And as noted in our comments regarding Question #4, a clearer delineation between Chapters 4 and 5 would help better define the scope of applicability for the authoring tool requirements. This would provide some aid to the challenge of estimating costs.

- **Question #20, regarding software applications vs. electronic documents (Chapters 4 & 5).**

  As stated in our comments above in the section "Authoring Tools, Electronic Content, and the distinction between Chapters 4 & 5", the distinction between these two chapters is difficult to understand. While the intent is evident – that of separating "simple" from "complex" – in practice the precise line between them is never clear.

  Instead, the subject matter of Chapters 4 and 5 is better delineated by the type of person or creative activity to which they apply. Specifically, Chapter 4 address "things programmers create", and Chapter 5 addresses "things document authors create." Looked at this way, questions about who in the organization needs to worry about which of the two chapters become clear – if you are simply creating documents in a word processor or spreadsheet, you don't have worry about Chapter 4. Also, the applicability of requirements in the context of Authoring Tools is better understood through this delineation. In final support of this structure, it would be helpful to provide definitions of "electronic document" and

"electronic content."

The Proposed Provisions should also provide a comprehensive set of the minimum information that must be defined in a set of platform accessibility services. This comprehensive set should then be referenced as appropriate in defining requirements for particular applications, as is appropriate. Presently provisions relating to this minimum set are spread across two chapters where they are best concentrated in Chapter 4.

- **Question #21, regarding a separate section for synchronized media content and players.**

  We found that the organization of this content within this document to be clear and understandable.

- **Question #22, regarding captioning.**

  Important industry work is taking place in this area, but we are not aware of any single consensus standard as having emerged yet, and are uncertain whether a single standard will ever be sufficient to cover the broad range of video playback technologies. Thus, it would be inappropriate for the Access Board to specify a particular standard for captions.

- **Question #23, regarding "Audio Track and Volume Control" (608) and multi-channel videos.**

  The emergence of multi-channel audio in video playback isn't unique to digital television standards – it has been a mainstay of ICT video playback technologies for many years (cf. Quicktime, Helixcode, etc.). The challenge is that these standards haven't included metadata tags that clearly mark which one (or which ones of multiple) audio tracks contain video descriptions, in what language(s) those descriptions are in, etc. Thus, there may be a single speech track, or multiple speech tracks, but none of them tagged as such so that a user agent rendering the audio/video content is unable to clearly present this option to consumers of the media. Until this is addressed – and appropriate metadata added to those media formats – individual ICT vendors will not be able to provide the desired user experience.

- **Question #24, regarding "Standard Connections" (703), and the term "connection points"**

  "Connection points" is not a term of common industry usage – a definition would be helpful. Please see our suggestion in Section "Issues Relating to ICT Documentation" regarding modifications to this provision.

- **Question #25, regarding "ICT Typically Held to the Ear" (803).**

  Automatic reset is inappropriate for devices that are of a personal / individual user nature.

- **Question #26, regarding standards similar to RFC-4103.**

  We have no thoughts to share for this question.

- **Question #27, regarding "Video Communications Support" (905) and specifications on video quality for accessibility.**

  We feel that the specifications for minimum video bandwidth should be harmonized with those for VoIP bandwidth—video bandwidth should not be lower than audio bandwidth. The VoIP definition states that technology is only "VoIP" if it requires a broadband connection (of undefined bandwidth, but we note that the FCC defines "Basic Broadband" as 768kbps, which is significantly more than the 256kbps used in 905.3.1.2).

- **Question #28, regarding "Alternate Alerting for VoIP Telephone Systems" (907).**

  We are not opposed to a requirement for optionally signaling incoming VoIP calls, so long as this signaling doesn't require support for an external signaling device in the cases of software-based VoIP applications, or for the hardware that may be used to run software-based VoIP (907.2.2); and further, that support for and use with a platform-provided "visual bell" feature is deemed as meeting 907.2.1.

- **Question #29, regarding "Accessibility Documentation" (1002.2) and the cost/benefit of same.**

  The proposed requirements for documentation can be quite costly, particularly for vendors that create cross-platform, multi-lingual applications. In many cases, products have moved away from having any documentation at all, so this forces the creation of documents that were not budgeted for at all. Other discussions about these requirements are in the Section "Issues Relating to ICT Documentation".

- **Question #30, regarding self-service machines.**

  We have no thoughts to share for this question.

- **Questions #31-33**

  These questions concern the possible impact of the Proposed Provisions on small business and whether some type of exemption should be adopted. An exemption for businesses based on size of the company is not justified from both a policy and legal standpoint. From a policy standpoint, Section 508 is intended to provide

access to persons with disabilities who might be federal employees or members of the public who seek to use federal ICT to access information. Small business accounts for a not insignificant percentage of the federal procurement expenditures. A broad small business exemption for Section 508 standards would be counter productive to the objectives of the law.

Further, in the Federal Acquisition Regulation (FAR) implementing Section 508, the preamble to the regulations observed that individuals would be able to file a civil action against an agency after enforcement provisions of Section 508 take effect on June 21, 2001. The reasoning that followed was "since the statute imposes private enforcement, where individuals with disabilities can file civil rights lawsuits, the government has little flexibility for alternatives in writing this regulation." The conclusion reached was that because of the requirements of the law, "*we cannot exempt small business from any part of the rule*."(emphasis added). In this context, there is a serious question whether there is even legal authority to exempt small business.

With respect to Section 255 standards and small business, it is important to recognize that the law and regulations already only require compliance to the extent that it is "readily achievable." That term includes recognition that the resources of a small business may be more limited than those available to a large company. In short, the law already provides measures that alleviate the burdens on small business. In these circumstances, there is little reason to consider a general exemption for small business.

While an exemption for small business is unwise and without legal authority, a clarification of the reach of the new regulations could provide considerable assistance to small as well as large businesses. As covered briefly in the discussion of Question 6 above, there is a concern that the Proposed Provisions could pose new broad burdens on contractors that would likely impact small business in particular. The proposed regulation provision E-103.4.2 titled "Federal Contracts" states that "this part applies to ICT procured, developed, maintained, or used by a contractor under a contract with an agency that requires the use of such ICT in the performance of specifications or deliverables under the contract." Though not entirely clear, this provision seems to say that the standards apply where ICT are deliverables under the contract or where the contract specifications require the contractor to use ICT. We are concerned about a potential mis-interpretation which is that the provisions apply to contractors who uses any ICT to perform the federal contract.

This mis-interpretation is suggested by the description of Application contained in E-103.1 which states that "the requirements …apply to ICT that is procured, maintained, or used by *or behalf of agencies.*" (emphasis added). The Board's explanation of the addition of the phrase "or behalf of agencies" was stated "to cover technologies used by contractors under a contract with a Federal agency." *Federal Register* March 22, 2010. This explanation suggested that the provisions

would reach the ICT used by contractors performing federal contracts irrespective of whether the ICT was to be delivered or was specified to be used in the contract. The discussion in Question 6 above outlined some of the problems associated with applying the provisions to all ICT that might be used by a contractor in the performance of a government contract. Further, there would be possible legal questions raised as to whether this implementation exceeds the scope of Section 508's focus on the federal agencies. In sum, as suggested in the discussion of Question 6 above, the provisions should be clarified to limit their application to the ICT of federal contractors that is delivered to the agencies or otherwise to be used by federal employees or members of the public seeking information from an agency.